

May 1975

Packing Instructions RD.131

IRVIN PARAWING ASSEMBLY TYPE PW.2/1

(Incorporating Irvin Parawing Delta II Canopy)

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## INTRODUCTION

This instruction contains the latest information regarding performance, handling, packing and care of the Irvin Parawing Assembly Type PW.2/1 which embodies the Irvin Delta II Parawing canopy.

The Delta II is recommended for use by experienced parachutists and the information contained in this instruction should be studied carefully to enable maximum performance, consistent with safety, to be obtained from the wing. The Delta II can be used in conjunction with suitable, approved rigs other than the PW.2/1 provided certain items of this assembly are utilized. Details of the necessary items are given under 'List of Components'

This instruction is in no way a warranty by Irvin Great Britain Limited., its agents, licensees or distributors, regarding the performance of any individual Delta II Parawing.

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## TRADE DESCRIPTION ACT (1968)

The information contained in this leaflet is presented in good faith following extensive testing of the described equipment: it is, however, liable to variation due to the widely differing circumstances under which the described equipment is likely to be used.

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## TECHNICAL DATA

The Delta II Parawing canopy has a surface area of 254 sq. ft. and consists of fourteen gores, each comprising five aerodynamic lifting sail panels. The material used in the construction of the wing is basically 2.25 oz. ripstop nylon, calendered and silicone treated.

The material and geometric (open area) porosities both vary as a function of wing location. The total porosity is 3.2% (nominal) of the wing area under typical descent conditions.

The rigging consists of ten leading edge and six keel lines made from 1,000 lb. U.T.S. nylon cord. Control of the wing is effected by two slot and two panel lines connected to a control line at each side of the canopy. The control lines, which are routed to toggles behind the front lift webs, are made from 750 lb. U.T.S. nylon cord.

The high performance of the Delta II is due to the basic aerofoil design which features radial louvres on the upper surface of the wing. The louvres provide directionally controllable air streams which promote laminar flow control, wing shaping, forward drive and good stability.

## PERFORMANCE DATA

## Rate of descent

(Steady Glide)	14 - 16 ft./sec.
50% Brakes	15 - 17 ft./sec. (approx.)
75% Brakes	16 - 20 ft./sec. (approx.)
Full Brakes	20 - 30 ft./sec. (approx.)

## Turn Rate (360°)

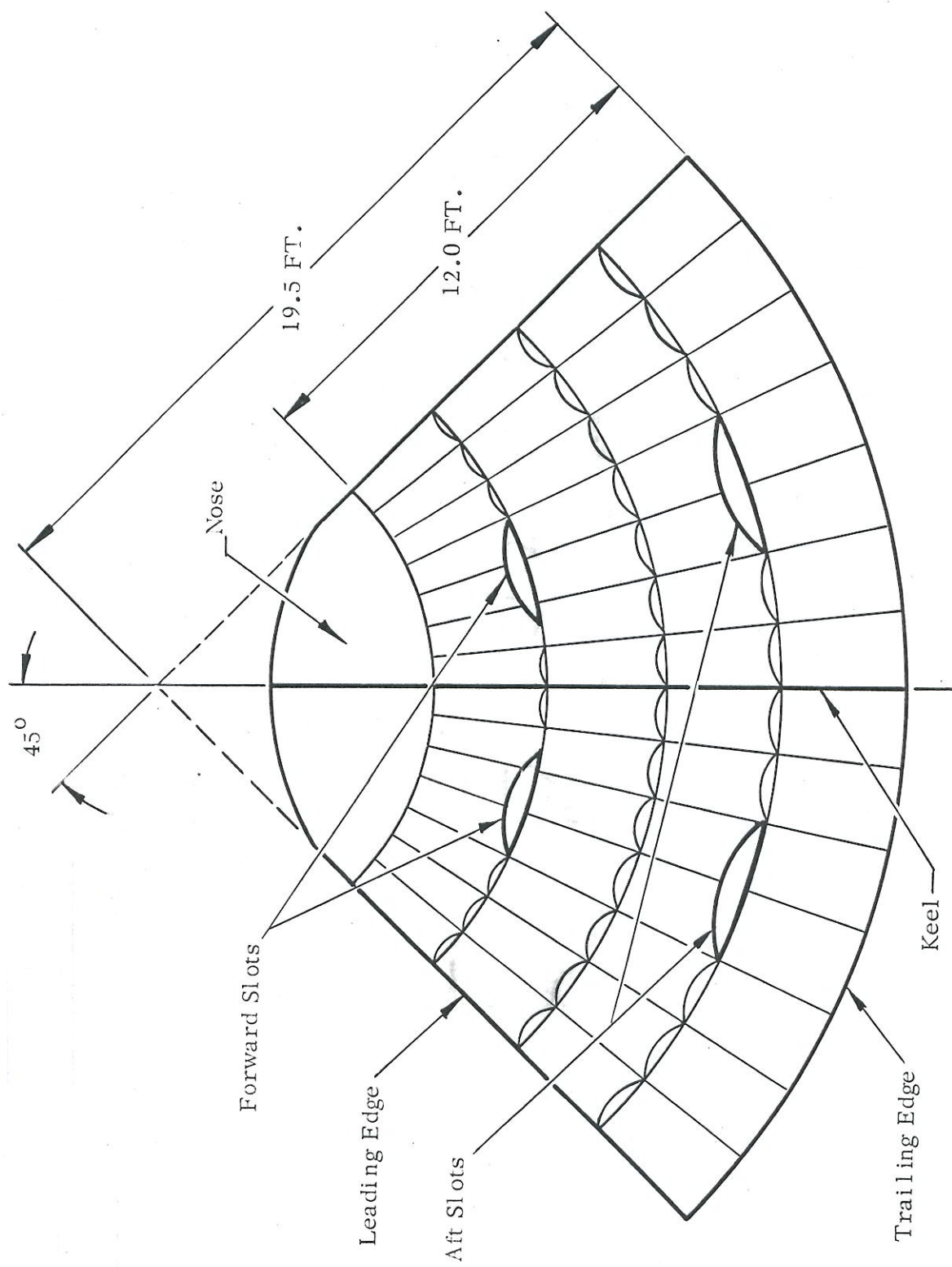
From straight flight	4 sec.
After 1 revolution	2.8 sec.

Suspended weight 120 to 250 lb.

Maximum lift/drag ratio 2/1

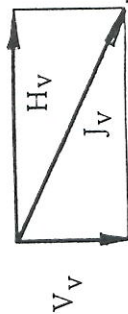
Manoeuvres Glide, brake, turn, stall



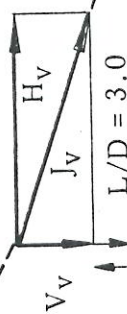


PLAN FORM OF 19.5 FT.  $L_K$  DELTA II PARAWING

NO WIND



UPDRAFT  
50 F.P.S. (3.5 MPH)

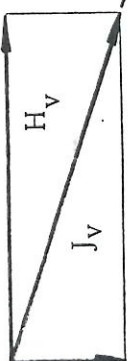


DOWNDRAFT  
5.0 F.P.S. (3.5 MPH)



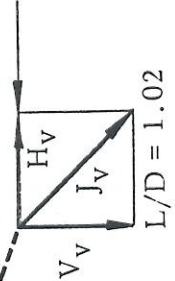
$V_v = 10$  F.P.S. (6.8 MPH)  
 $H_v = 30$  F.P.S. (204 MPH)  
 $J_v = 31.6$  F.P.S. (21.5 MPH)

TAILWIND  
14.6 F.P.S. (10 MPH)



$V_v = 15.0$  F.P.S. (10.2 MPH)  
 $H_v = 44.6$  F.P.S. (30.4 MPH)  
 $J_v = 47.1$  F.P.S. (32.1 MPH)

HEADWIND  
14.6 F.P.S. (10.0 MPH)



$V_v = 15.0$  F.P.S. (10.2 MPH)  
 $H_v = 15.4$  F.P.S. (10.4 MPH)  
 $J_v = 21.5$  F.P.S. (14.6 MPH)

KEY

CONDITIONS:

- No Wind
- Updraft
- Downdraft
- Tailwind
- Headwind

$V_v$  = Vertical Velocity  
 $H_v$  = Horizontal Velocity  
 $J_v$  = Jumpers Velocity

No Brakes

$L/D$  Presented is with respect to a Ground Reference Point

EFFECT OF VARYING WIND CONDITIONS ON GLIDE ANGLE

## OPENING CHARACTERISTICS

Inflation of the Parawing is positive, consistent and reliable and consists of four separate stages, as follows :-

1. The rigging lines withdraw from the stowages on the deployment bag until the bag locking flap is released.
2. The bag is drawn off the folded wing and the wing unfolds as it emerges from the bag.
3. When the wing is clear of the bag, the nose inflates and causes an initial deceleration shock to the parachutist as line stretch occurs.
4. When the nose inflates, the top O.S.I. (Opening Shock Inhibitor) is opened and a locking tab is pulled off the bottom O.S.I. The bottom O.S.I. then unwraps and progressively releases the lines until the wing inflates fully.

Unwrapping of the bottom O.S.I. from the rear lines is completed in a few seconds. In the event of it failing to unwrap completely, jerking of the left front lift web will normally complete the process.

Two distinct flight characteristics are evident following inflation of the wing ; one being high manoeuvrability and the other wind noise due to forward drive.

## FLIGHT CHARACTERISTICS

## TURNING

Slow, stable turns are initiated by slowly and smoothly pulling down one of the control toggles located at the rear face of the front lift webs. As the knob is pulled progressively down, the rate of turn increases together with swing angle, g force on the body and rate of descent.

Upon releasing the toggle completely, the wing stabilizes and the body swings out in a slight reverse arc before returning to a normal position below the wing. During the turn recovery period, the noise made by the airflow passing around the body decreases as the wing slows and then increases as the wing resumes normal flying speed.

To effect a turn when in a half to full braked position, the toggle on the lift web opposite to the direction in which it is intended to turn, should be let up i.e. to execute a turn to the right, let up on the left-hand toggle.

Caution

Tight turns should not be attempted under low speed, low altitude conditions. The Delta II behaves in a similar manner to an aircraft in that if an attempt is made to turn near the stalling speed, one wing will drop and a spin will develop. It is strongly recommended, therefore, that tight turns should not be attempted below 500 ft. A.G.L. and that as the target is approached, only minor corrections are made.



## BRAKING

Braking to slow the wing is achieved by slowly and smoothly pulling down on both control toggles. With the toggles pulled down to shoulder height, the forward speed will decrease to approximately 5 m.p.h. The L/D can be advantageously decreased or increased by the correct application of brakes and the rate of descent controlled between 14 feet per second, with no brakes, to approximately 30 feet per second with brakes fully applied.

## STALLING

Like any other gliding device, the Parawing is subject to stalling, or loss of flying speed. To effect a stall, both control toggles should be slowly and smoothly pulled downwards until slightly past the full brake position. At this position, forward speed gradually falls off to zero and an accelerated downward descent commences. On entering the stall mode, the wing remains fully inflated, there is, however, some loss of directional stability resulting in a tendency to drift to the left or right. Drifting can be readily corrected by pulling alternately on the control toggles and with practice the wing can be held directly overhead throughout the stall. If drift is not corrected, the wing will begin a gradual turn towards the direction in which it is drifting and if this occurs the controls must be released to allow the wing to resume a stable gliding attitude. It is emphasized that downward descent velocity can be as high as 30 feet per second during a stall. In view of the high descent rate, stalling is not a recommended manoeuvre below 500 ft. above ground level.

## GLIDING (L/D)

The inherent gliding ability of the Parawing is, perhaps, its most exceptional characteristic. It is important to remember, however, that certain variables, such as wind velocity and the direction of flight, can influence the glide angle relative to a fixed point on the ground. The type of terrain over which the wing is passing also affects the glide path - certain surfaces being more effective than others in providing rising air currents.

Ploughed ground, rocks, sandy and barren ground give off heat to provide updraughts which will vary in intensity according to the prevailing weather conditions. Updraughts are normally strong at low altitudes and their effect can be overcome during target approach by gradual braking to prevent overshooting.

Water and vegetation have a tendency to retain heat and thereby cause downdraughts. The effects of downdraughts can be hazardous at low altitudes because in their presence the vertical descent rate of the wing will be increased.

Maximum L/D is obtained by flying the wing hands off. In this condition the Parawing will fly in a stable, maximum glide attitude. The nominal L/D is decreased by the gentle application of brakes. The forward speed of the wing will decrease as the rate of braking is increased and the rate of vertical descent will increase due to the progressive loss of lift.

## TARGET APPROACH

Provided an exit is made within half a mile of the target, full deployment is above 2,000 feet and wind speed does not exceed 8 m.p.h., the Parawing has the ability to reach the target from any direction. Under high wind conditions it is recommended that an exit is made well up wind of the target to avoid overshooting. The first problem normally encountered by a parachutist with the Parawing is overshooting and this is due mainly to the fact that he is unaccustomed to the high forward speed. With the gentle application of brakes after crossing the D.Z., the Parawing can be made to settle in an area where dead centre landings are only a matter of foot placement. Under conditions of low wind, the parachutist can circle the target area at a range of about 100 yards from the centre and when flying at least cross wind, preferably upwind, and at a height judged to be sufficiently low, slowly turn in for a landing.

Because of a high forward speed, the Parawing requires an early application of brakes to slow down. It will be noted that neither forward or rearward swing occurs when the brakes are applied or released. A collision with another parachutist can be avoided by making a tight 360° turn: this will result in a rapid loss of altitude but will enable the original flight path to be followed immediately on completion of the turn.

Initially, it is suggested that all landings be made into wind from about 100 feet, having first assumed a normal landing position. Once the suspended weight is taken off the Parawing, the canopy will collapse.

RESTRICTION ON FLIGHT MANOEUVRES
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In view of the high performance of the Parawing, certain limitations on low-altitude manoeuvres are necessary and it is strongly emphasized that the flight characteristics should be fully understood before making a jump. The limitations listed below should be observed at all times.

1. Stalling - Do not attempt to stall below 500 feet above ground level.
2. Steep Turns - Do not attempt steep turns at a low altitude. Plan large radius turns with minor corrections during the final approach.
3. Landing - Always land the Parawing upwind (i.e. into wind).



## CLEANING PROCEDURES

Any large deposits of dirt or mud should be removed from the wing at the earliest opportunity. The soiled area, or the entire canopy can be washed by using lukewarm water and a very mild laundry soap. Do not use a detergent and never allow the canopy to come into contact with oil, grease or acid.

If a jump is made into salt water, the wing, lines and all other items must be thoroughly rinsed with fresh water to remove all salt deposits. After washing, the canopy should be hung in the shade to dry. Never dry the Parawing in direct sunlight as this will tend to weaken the material.

If a jump is made into fresh water, it is only necessary to dry the wing under shaded conditions. Always make sure that the Parawing is completely dry before packing. If it is to be stored for extended periods, it should be hung or loosely packed in a cool, dry place.

LIST OF COMPONENTS : IRVIN PARAWING ASSEMBLY  
TYPE PW.2/1

The Irvin Parawing Assembly Type PW.2/1 comprises :

<u>Nomenclature</u>	<u>Drawing Number</u>
*Parawing Delta II (comprises canopy, rigging and control lines and detachable lift webs)	IAC-D-10826
Pack Type PW.2/1	IAC-D-10802
∅ Deployment bag type PW.2/1	IAC-D-10811
Auxiliary parachute Type V 33/1 (2 off)	IAC-D-10822
∅ Deployment bag link line	IAC-B-10839
∅ Auxiliary parachute strop	IAC-B-10840
Harness Type PB.4/1	IAC-D-3513
Ripcord pocket	IAC-C-10485
Ripcord housing	IAC-B-3590
Ripcord assembly	IAC-C-10841
Elastic bands (2-inch), rigging line stowage	IAC-3420
Elastic bands (1 x $\frac{1}{4}$ -inch flat), link and retaining line stowage	Rubber bands No. 60
Deployment bag and auxiliary parachute retaining line	Made from 86-inch length 400 lb nylon (Spec. MIL-C-5040 Type III or equivalent)

\*The Parawing Delta II can be fitted to other suitable, approved parachute rigs provided the items marked ∅ are also employed. The use of twin auxiliary (extractor) parachutes is strongly recommended and a type different to that listed above may be used provided the flat diameter is not less than 33 inches.

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## PACKING INSTRUCTIONS

Note : No attempts should be made to deviate from the procedures laid down in these instructions.

### 1. PREPARATION : GENERAL

- (1) Extend the wing, rigging lines and harness full length over the packing area.
- (2) Refer to Appendix 'A' and check that the harness and pack are correctly assembled.
- (3) Arrange the wing so that the nose is lying uppermost with the trailing edge towards the floor and the wing tips extended (fig. 1). Remove all tangles and twists from the rigging and control lines. The harness should now be uppermost with the inside of the pack towards the floor (fig. 2).
- (4) Secure the harness by means of a length of nylon cord to a suitable fixed anchorage.

### 2. RIGGING LINES AND CONTROL LINES CHECK

Looking from the wing towards the harness, complete a full lines check as described below. All lines must have a clear run from wing to harness without crossing or being crossed by other lines. The correct sequence (see Appendix 'B') is as follows :

Note : Each group of lines is assembled to its attachment link from the inner side of the link to the outer side, in the order given.

- (1) Right-hand leading edge lines to front right-hand lift web (checked from, but not including, nose line 1K (blue)) :  
1R (blue), 2R (orange), 3R (green), 4R (gold), 5R (red).
- (2) Left-hand leading edge lines to front left-hand lift web (check from, but excluding nose line (1K blue)):  
1L (blue), 2L (orange), 3L (green), 4L (gold), 5L (red).
- (3) Keel lines from nose to trailing edge :  
1K (blue) to right-hand rear lift web  
2K (blue) to left-hand rear lift web  
3K (orange) to right-hand rear lift web  
4K (green) to left-hand rear lift web  
5K (gold) to right-hand rear lift web  
6K (red) to left-hand rear lift web.



- (4) Check the two slot lines and 2 panel lines (white in colour) at each side of the wing (see Appendix 'C') for clearance between the attachment points on the wing and the attachment points at the top of the gold coloured control lines. The control lines should have a clear run to the toggles positioned on the rear face of the front lift webs.
- (5) Check the bottom O.S.I. (Opening Shock Inhibitor) locking tab lanyard between the attachment point where line 2K (blue) joins the wing and the D-ring at the end of the locking tab. Ensure that the lanyard runs through and not around the D-rings adjacent to lines 3K (orange) and 4K (green).

3. PREPARING THE DEPLOYMENT BAG : ATTACHING THE AUXILIARY PARACHUTES : ATTACHING THE BAG AND AUXILIARY PARACHUTES TO THE WING

- (1) Secure the large loop of the deployment bag link line to the small loop of the auxiliary parachutes strop with a larkshead knot (fig. 3).
- (2) Secure the small loop of the link line to the becket at the end of of the deployment bag with a larkshead knot.
- (3) Pass the large loop of the auxiliary strop through the eye of the first auxiliary parachute and then through the eye of the second : pass the crowns of the second and first auxiliary parachutes, in that order, through the large loop in the auxiliary strop and tighten the connection to form a larkshead knot.
- (4) Take a doubled 86-inch length of 400 lb. nylon cord and pass the doubled end through the small loop in the auxiliary strop. Pass the two ends of the cord through the loop in the doubled end, pull the cord tight to form a larkshead knot and secure with a stop knot. The knot should be arranged to lie as close as possible to the knot of the deployment bag link line (fig. 3). Mark each free length of 400 lb. line at a dimension of 34 inches from the stop knot.
- (5) Arrange the deployment bag so that the rigging line stowage panel is uppermost. Secure 2-inch rubber bands (IAC.3420) by means of larkshead knots to each of the retaining loops. The loops of the rubber bands, when secured, should be at the outer edges of the retaining loops.

Note : Do not fit rubber bands to the strip of retaining loops on the reverse face of the deployment bag at this stage.

- (6) Pass the two 34-inch retaining lines through the cut-out at the closed end of the deployment bag (fig. 4).
- (7) Remove all tangles and twists from the deployment bag link line, auxiliary strop and the two retaining lines. Locate the two rear beackets on the top surface of the wing outboard of line 4K (green). Pass the retaining lines through the beackets so that the 34-inch marks coincide with the beackets. Secure each line to its beacket with a bowline knot (fig. 4).

#### 4. FOLDING THE WING

- Note :
- (i) It is important that the rigging lines and the material of the wing are firmly tensioned at all times during each folding operation.
  - (ii) Locations in the sequences described below are given from the top of the wing looking towards the harness.
- (1) Arrange the bottom O.S.I. to lie beneath all control and rigging lines.
  - (2) Commence folding the left side of the wing by tracing the trailing edge seam up from the direction of the attachment point of line 5L (red). Run the hand along the inside of the seam until the trailing edge is equally tensioned at both sides of the fold formed by the hand (fig. 5).
  - (3) Locate the first slot in the wing from the trailing edge with the right-hand. Run the right-hand along the slot until the material of the wing is equally tensioned at both sides of the fold formed by the right-hand (fig. 5).
  - (4) Flick the material of the wing over and form a fold to the left equal to half the width of the panel and arrange the slot to lie on top, and level with, the trailing edge (fig. 6). Hold the folded portion of the wing in tension and pull the control panel up towards the top of the wing (fig. 7).
  - (5) Continue folding the left side of the wing in a similar manner ensuring that the rigging lines and wing fabric are in tension as each fold is made, and that the control panel is pulled up as the operation progresses. Folding of the left side of the wing is complete when a fourth fold is made in the panels above lines 2L (orange) and 1L (blue). It will be noted that there is no slot between the forward panels and the nose section (fig. 8).



- (6) Fold the right side of the wing in a similar manner commencing with the panels above 5R (red) and 4R (gold) and finishing with the panels above 2R (orange) and 1R (blue).
- (7) Trace the left leading edge from line 1L (blue) to 5L (red) and check that the lines have a clear run to the front left-hand lift web. Arrange each fold between rigging lines to lie to the outside of the wing in a "sharks tooth" configuration. Similarly check the right leading edge lines to the front right-hand lift web and arrange the folds in a "sharks tooth" pattern (fig. 9).
- (8) Taking care not to disturb the folds, bring the two sections of the wing together.
- (9) Compress the fabric of the wing so that it is waisted-in beneath the top O.S.I. Firmly wrap the top O.S.I. around the wing and secure with the touch-tape strips provided (fig. 10).
- (10) Locate line 1K (blue) and withdraw the nose section progressively from the top O.S.I. until between 12 and 14 inches of material below lines 1L (blue) and 1R (blue) is exposed (fig. 11).
- (11) Keeping the four blue lines in tension (1K, 2K, 1L and 1R) lay the nose section down on top of the folded wing ensuring that the nose line is centrally positioned. Distribute the material of the nose panel evenly towards the top of the wing and loosely around the sides of the folded sections (fig. 12).

## 5. FITTING THE BOTTOM O.S.I.

- (1) Check the lanyard of the bottom O.S.I. locking tab to ensure that it has an unimpeded run along line 4K (green). The D-ring of the tab should run freely down line 4K (green) and the lanyard should not cross, or be crossed, by other lines (fig. 13).

Note : To enable each line to be checked visually for correct sequence, the operator may find it convenient to pick up the rigging and control lines, in the order stated below, and arrange them over the shoulder (see fig. 14). The lines can then be checked individually before being laid in the O.S.I.

- (2) Pick up the rigging and control lines and lay them over the shoulder in the following order :
  - 1R, 1K, 2K, 1L (blue)
  - 2R, 3K, 2L (orange)
  - 3R, 4K, 3L (green)
  - 4R, Control line, 5K, Control line, 4L (gold)

- (3) Fold the outboard leading edge sections above lines 5R (red) and 5L (red) inwards as shown in fig. 14.
- (4) Refer to Appendix 'D' and lay the five gold coloured lines (4L, Control line, 5K, Control line, 4R) centrally across the folded-in sections of the leading edge. Fold the leading edge sections inwards to cover the lines. Firmly wrap the O.S.I. around the covered lines until the green marker appears (fig. 15).

Note : Do not counter-rotate the O.S.I. when completing the wrapping operation.

- (5) Lay the three green coloured lines (3L, 4K, 3R) across the O.S.I., to the right of the green marker (viewed looking towards the wing). Wrap the O.S.I. around the lines until the orange marker appears (fig. 16).
- (6) Lay the three orange coloured lines (2L, 3K, 2R) and line 2K (blue) only into the O.S.I. (fig. 17). Wrap the O.S.I. around the lines until the blue marker appears.

Note: The blue marker is redundant when this method of packing is used and is not fitted to late production assemblies.

- (7) Keeping the three remaining blue lines clear (1R, 1K, 1L) continue wrapping the O.S.I. until the two strips of touch-tape are lying adjacent to each other. A minimum of four complete turns, preferably five, must be made around the O.S.I. subsequent to laying in the three orange and one blue (2K) lines (fig. 18).
- (8) Locate the O.S.I. locking tab, ensure that it does not pass around any of the grouped lines adjacent to the O.S.I., and secure it to the touch-tape strips of the O.S.I. as shown in fig. 18. When the locking tab is fitted, the D-ring must be at the top of the O.S.I., i.e. towards the wing, and the lanyard attachment at the bottom, towards the harness.

#### WARNING

To prevent deployment malfunctions, it is most important that the bottom O.S.I. locking tab is correctly fitted.

- (9) Again check the O.S.I. locking tab lanyard to ensure that it has a clear run with line 4K (green). Tension the lanyard away from the O.S.I. and tuck the surplus length up into the folded wing.



6. STOWING THE WING INTO THE DEPLOYMENT BAG : STOWING THE RIGGING LINES : CLOSING THE PACK

- (1) Unfasten the harness anchorage. Unfasten all the flaps of the deployment bag and arrange the bag inside uppermost with the long cover flap adjacent to the top of the wing (see fig. 4).

Note : Locations in the following sequence are given from the wing looking towards the deployment bag :

- (2) Pick up the top of the wing and push well down into the right-hand corner of the bag. Check the top O.S.I. wrap for security and push well down into the left-hand corner of the bag (fig. 19).
- (3) Taking care not to put in any twists, continue stowing the wing in a series of uniform 'S' folds, pushing each fold well down into the deployment bag. As the stowing operation progresses, fasten the two halves of the rigging line stowage panel base together with the touch-tape strips provided (fig. 19).
- (4) Make the final stowage by arranging the bottom O.S.I. centrally across the open end of the bag, having checked first that the locking tab is securely fitted to the bottom O.S.I. Pick up the three blue coloured lines (1R, 1K and 1L), tension them away from the harness and neatly hank the surplus length across the inside of the bag, above the bottom O.S.I. (fig. 19). Ensure the touch-tape edges of the rigging line stowage panel base are in full contact over the length of the base.
- (5) Tension the rigging lines away from the harness. Taking care not to disturb the blue lines hanked inside the deployment bag, lay the lines along the centre of the bag, between the two rows of stowage loops.
- (6) Fold over the long stowage flap and pull the rubber stowage bands up through the two slots at the end of the flap (fig. 20).
- (7) Draw a fold in the grouped rigging lines and make a stowage in the top, right-hand rubber band. Make a similar stowage in the left-hand rubber band (fig. 20).
- (8) Continue stowing the rigging lines zig-zag fashion until the ends of the lift webs are butting against the end of the deployment bag (see fig. 21).
- (9) Check that the pack elastics are correctly routed through the tunnels on the pack. Turn the pack under the lift webs so that the inside is uppermost. The bottom edge of the pack (as worn) should now be adjacent to the deployment bag (fig. 21).

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- (10) Locate the two retaining lines passing through the cut-out at the end of the deployment bag and carefully withdraw them by tensioning the auxiliary parachutes attachment strop (fig. 22).
- (11) Fasten the two halves of the rigging line protection flap with the touch-tape strips provided (fig. 22).
- (12) Extend the pack flaps so that the base of the pack is clear. Neatly arrange the lift webs along the pack base as shown in fig. 21. Ensure the control toggles are correctly positioned behind the front lift webs.
- (13) Turn the bag over on to the pack so that the stowed rigging lines are towards the pack base (fig. 23). Locate the rigging line attachment links and neatly stagger them as shown in fig. 23.
- (14) Fit No. 60 rubber bands ( $1 \times \frac{1}{4}$ -inch flat) to the stowage strip at the top of the deployment bag by means of larkshead knots (fig. 23).
- (15) Ensuring that no twists are put in, stow the retaining lines and link line within the rubber bands. The attachment knot to the auxiliary strop should not be stowed (fig. 23).
- (16) Compress the first auxiliary parachute squarely on to the centre of the deployment bag and tuck the loose fabric around the spring. Compress the second auxiliary on top of the first and similarly arrange the loose fabric of the canopy (fig. 24).
- (17) Fold the two pack side flaps over and engage the centre cone through the mating grommet. Insert the outer rip pin through the cone.
- (18) Fold over the top flap fitted with the cone plate and housing and pass the cone up through the top grommets of the side flaps. Insert the inner rip pin.
- (19) Withdraw the outer rip pin from the centre cone and insert the centre rip pin in its place.
- (20) Fold over the bottom flap, pass the cone up through the bottom grommets of the side flaps and insert the outer rip pin.
- (21) Tidy the pack in the normal manner and safe tie the outer rip pin with scarlet locking thread (Ref. 15A/181). Fig. 25 shows the assembly at this stage.
- (22) Fold over the rip pin protection flap and secure with the touch-tape strips provided. Secure the free ends of the pack opening elastics to the eyes on the pack.
- (23) Packing of the assembly is now complete (fig. 26).

FIG. 1

WING LAID OUT PRIOR TO CHECKING RIGGING  
AND CONTROL LINES SEQUENCES

1. Nose
2. Trailing edge
3. Right - hand leading edge
4. Left - hand leading edge
5. Bottom O.S.I.

FIG. 2

PACK AND HARNESS LAID OUT PRIOR TO CHECKING  
RIGGING AND CONTROL LINES SEQUENCES

1. Front left - hand lift web
2. Rear left - hand lift web
3. Rear right - hand lift web
4. Front right - hand lift web
5. Harness on top of pack



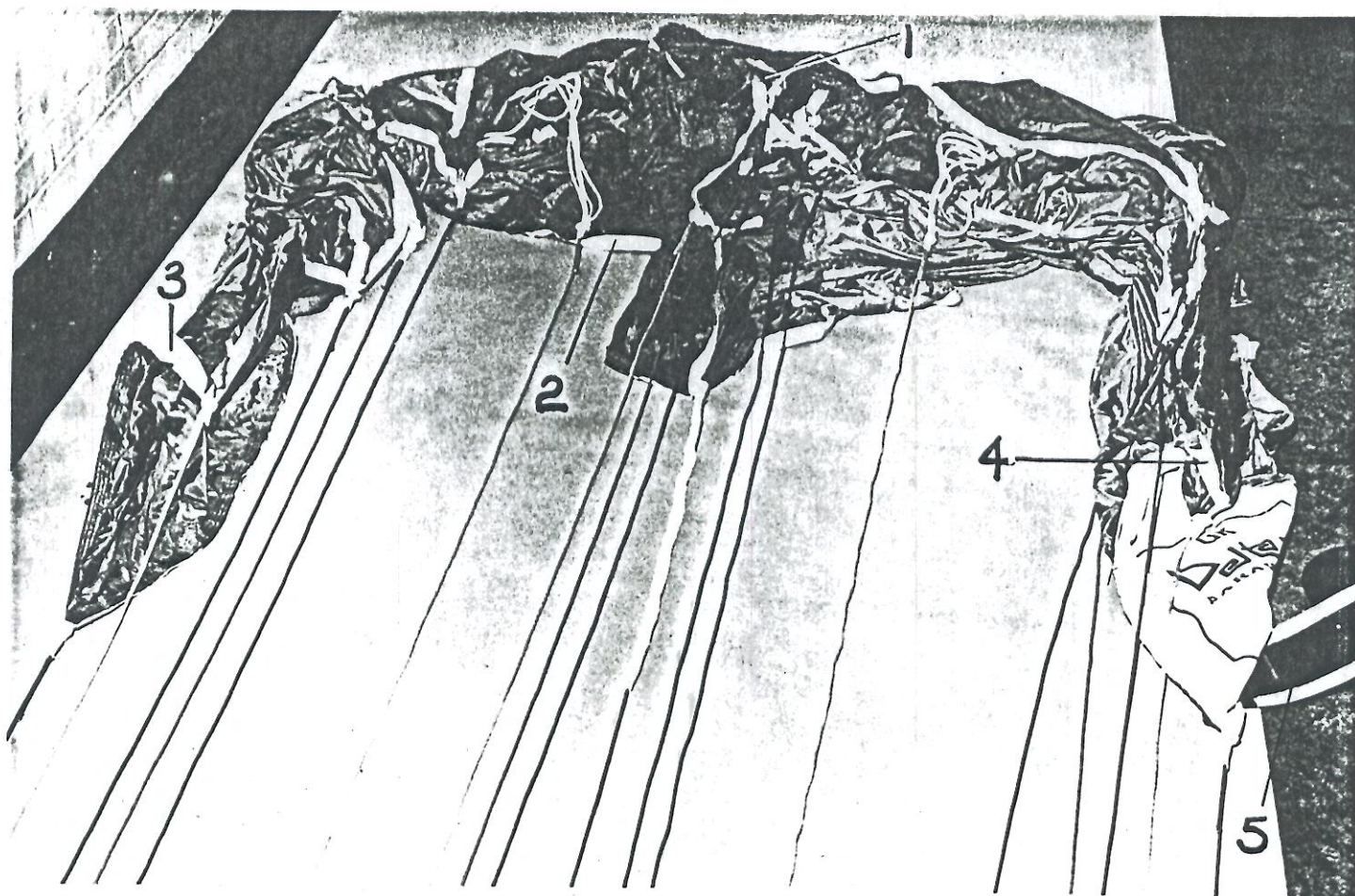


FIG. 1

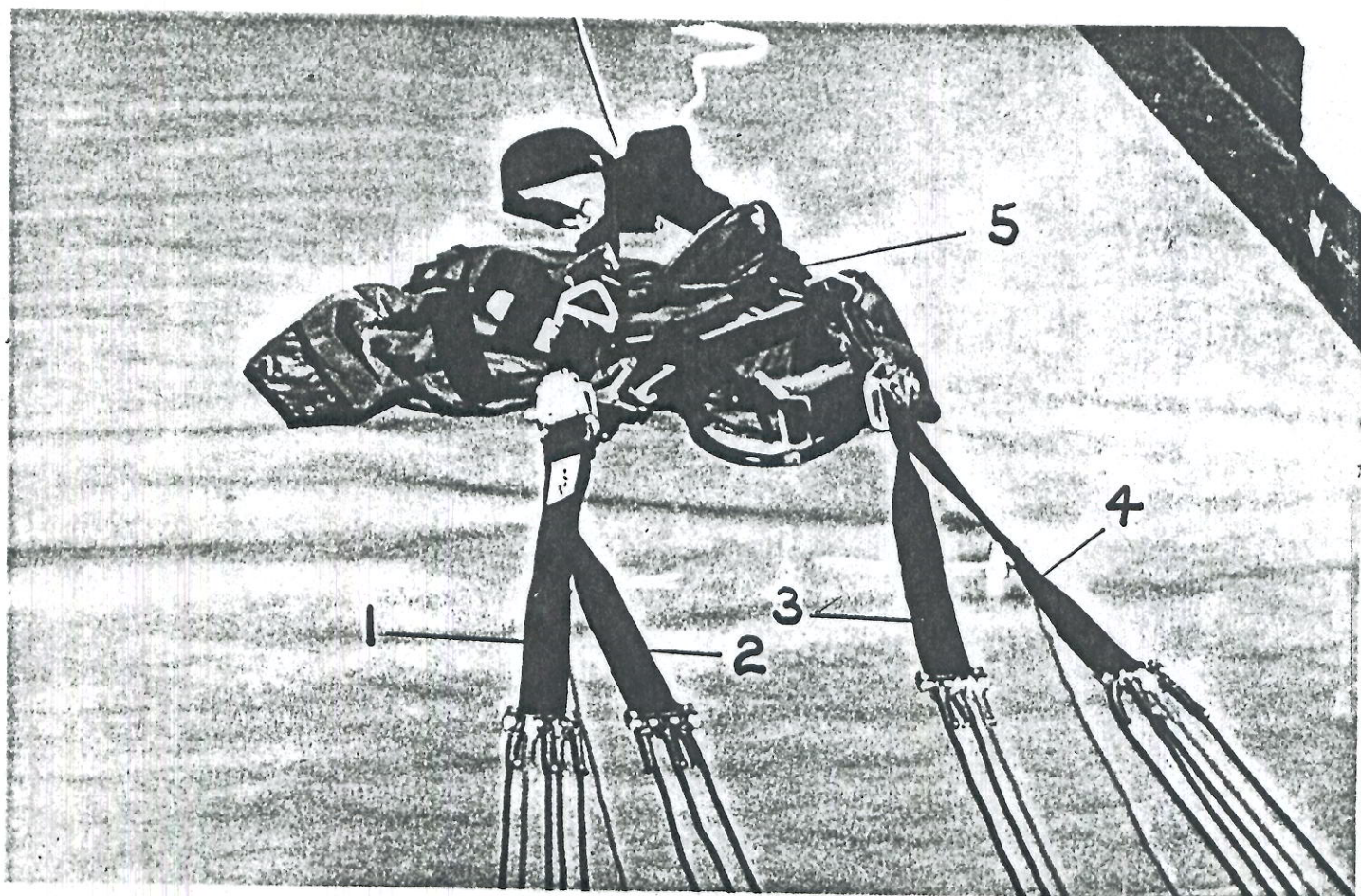


FIG. 2



FIG. 3

CONNECTING THE AUXILIARY PARACHUTES TO THE  
DEPLOYMENT BAG : FITTING THE RETAINING LINE

1. Deployment bag link line
2. Auxiliary strop
3. Retaining lines
4. Deployment bag
5. Auxiliary parachutes

Note : L/H denotes "Larkshead" knot

FIG. 4

DEPLOYMENT BAG AND AUXILIARY PARACHUTE  
RETAINING LINE SECURED TO WING

1. Retaining line secured to each becket with a bowline knot.
2. Auxiliary strop, link line and retaining line free from twists.



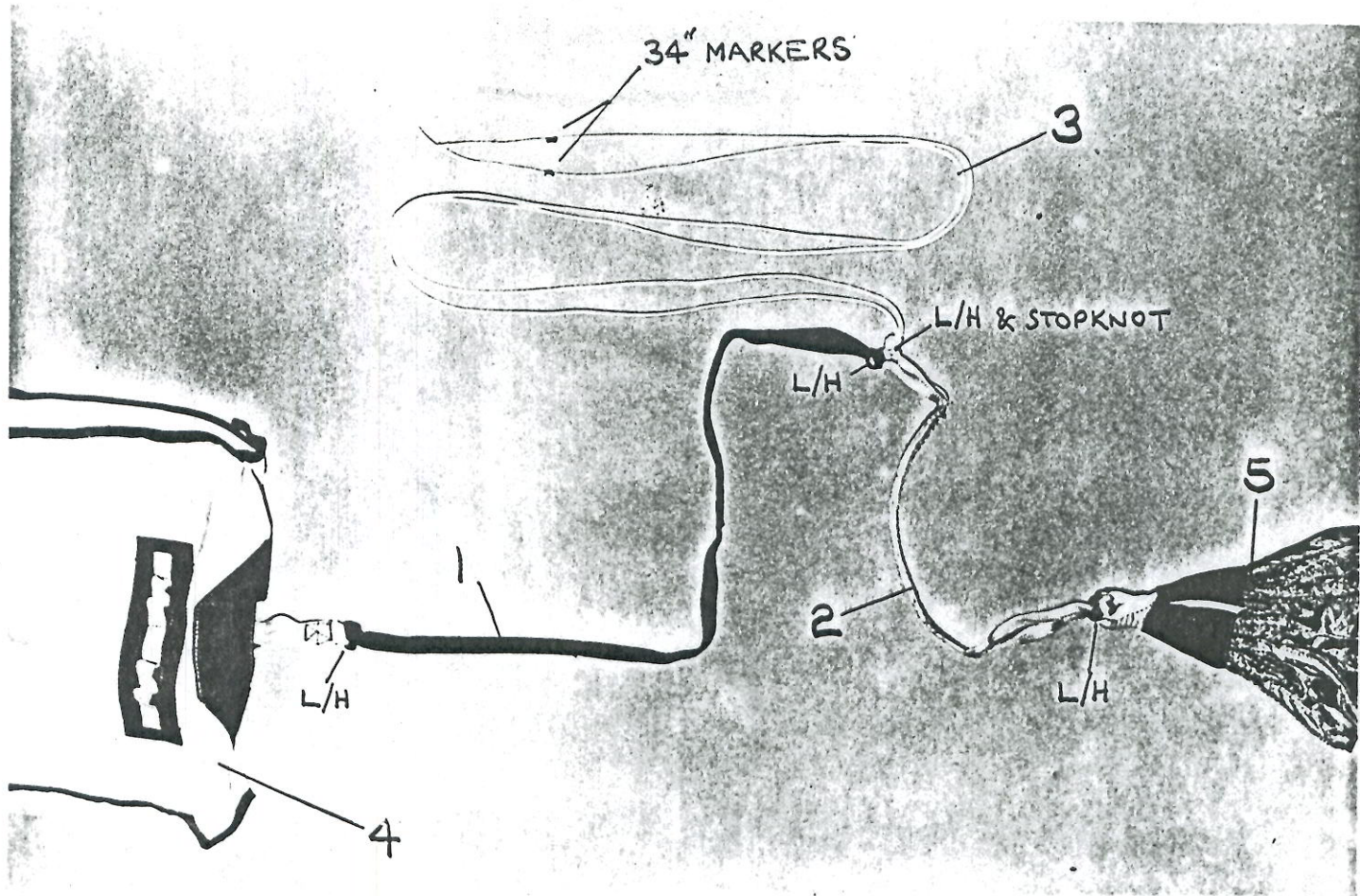


FIG. 3

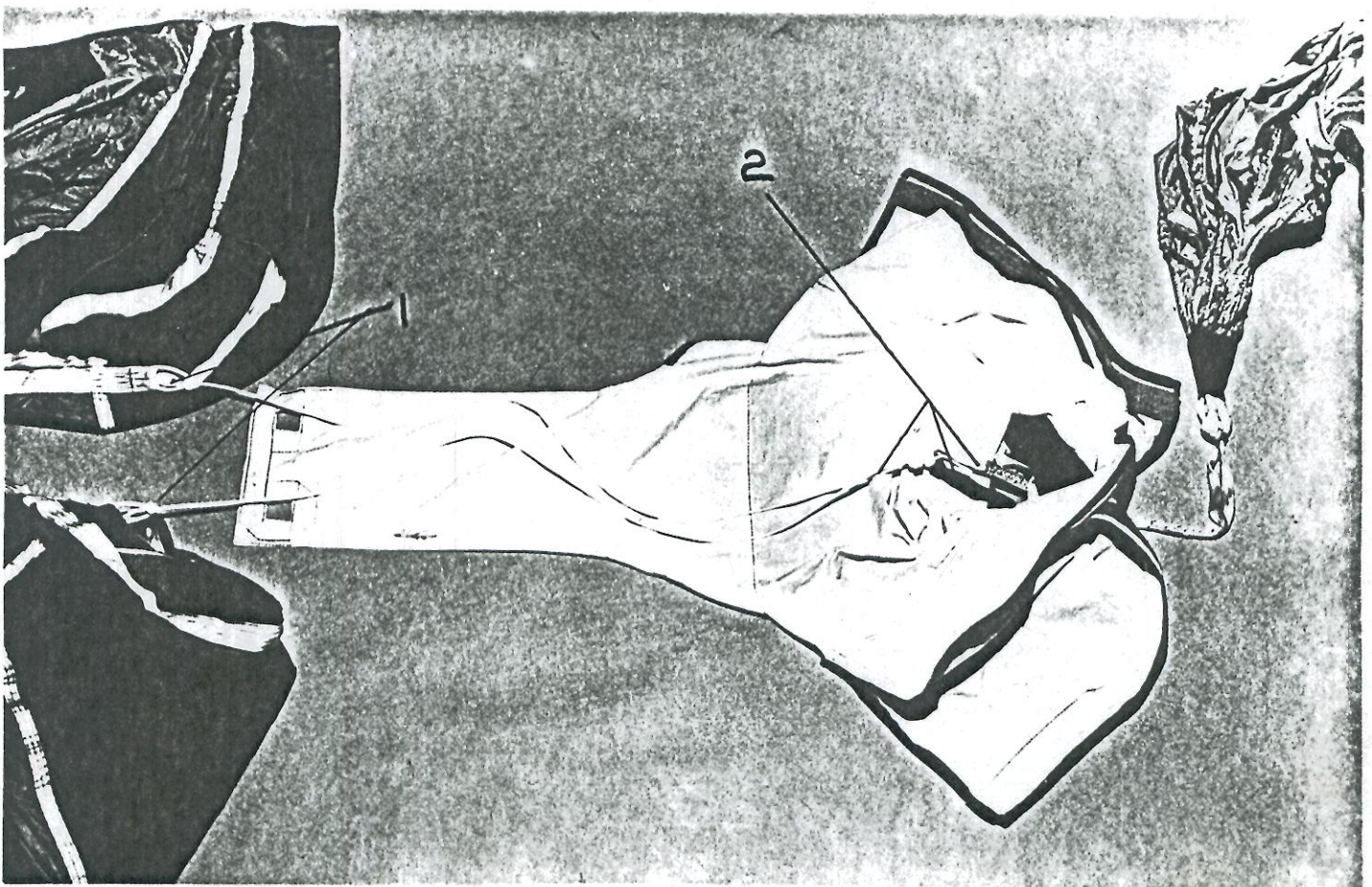


FIG. 4

FIG. 5

FOLDING THE WING : FIRST STAGE

1. Fabric of wing in equal tension at both sides of fold.
2. Top O.S.I. (Left - hand side of wing only).
3. Trailing edge.

FIG. 6

FIRST FOLD AT LEFT - HAND SIDE OF  
WING COMPLETED

1. First slot forward from trailing edge being positioned on top of trailing edge.
2. Fold made to the outer side of the wing.



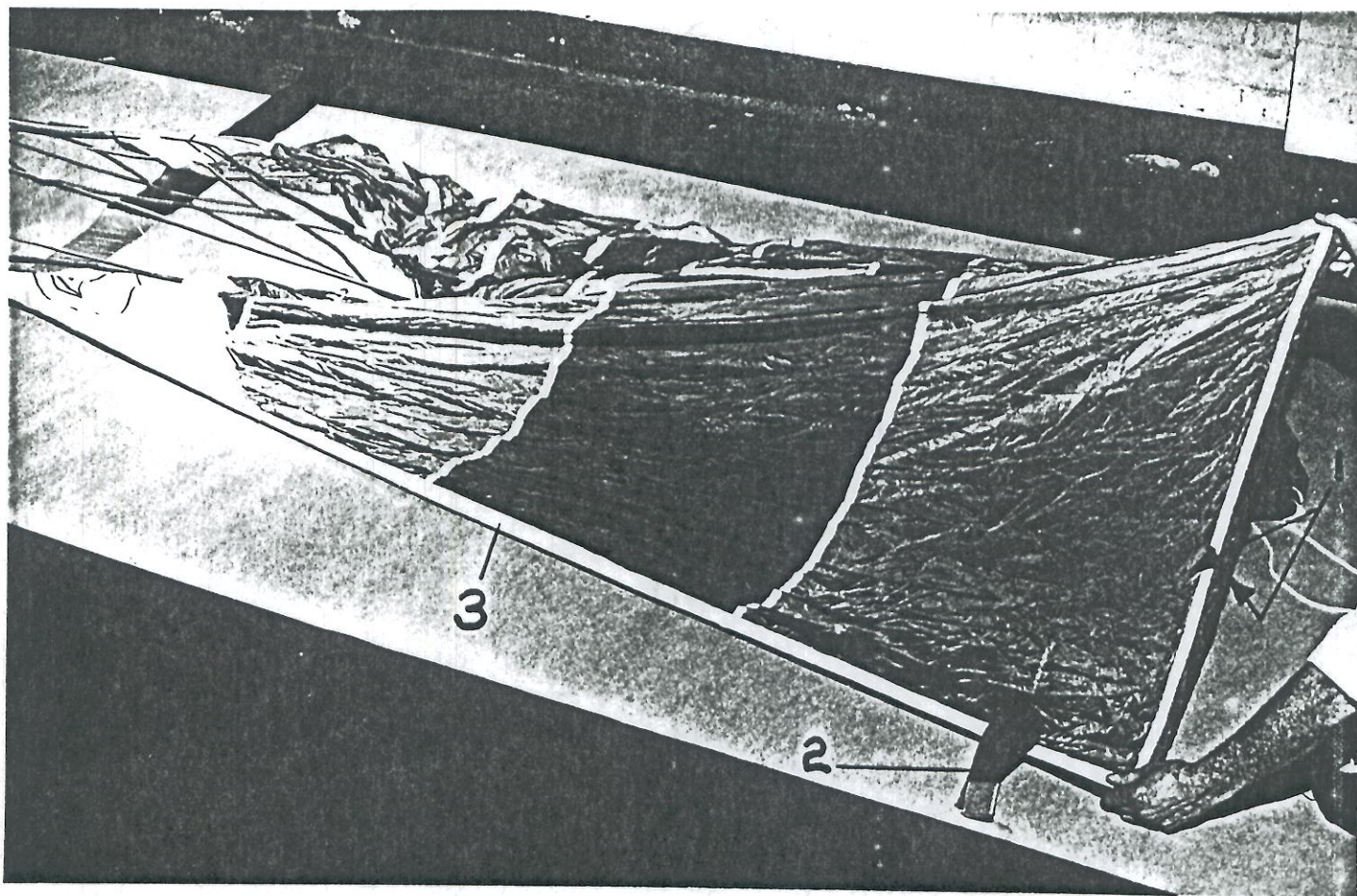


FIG. 5

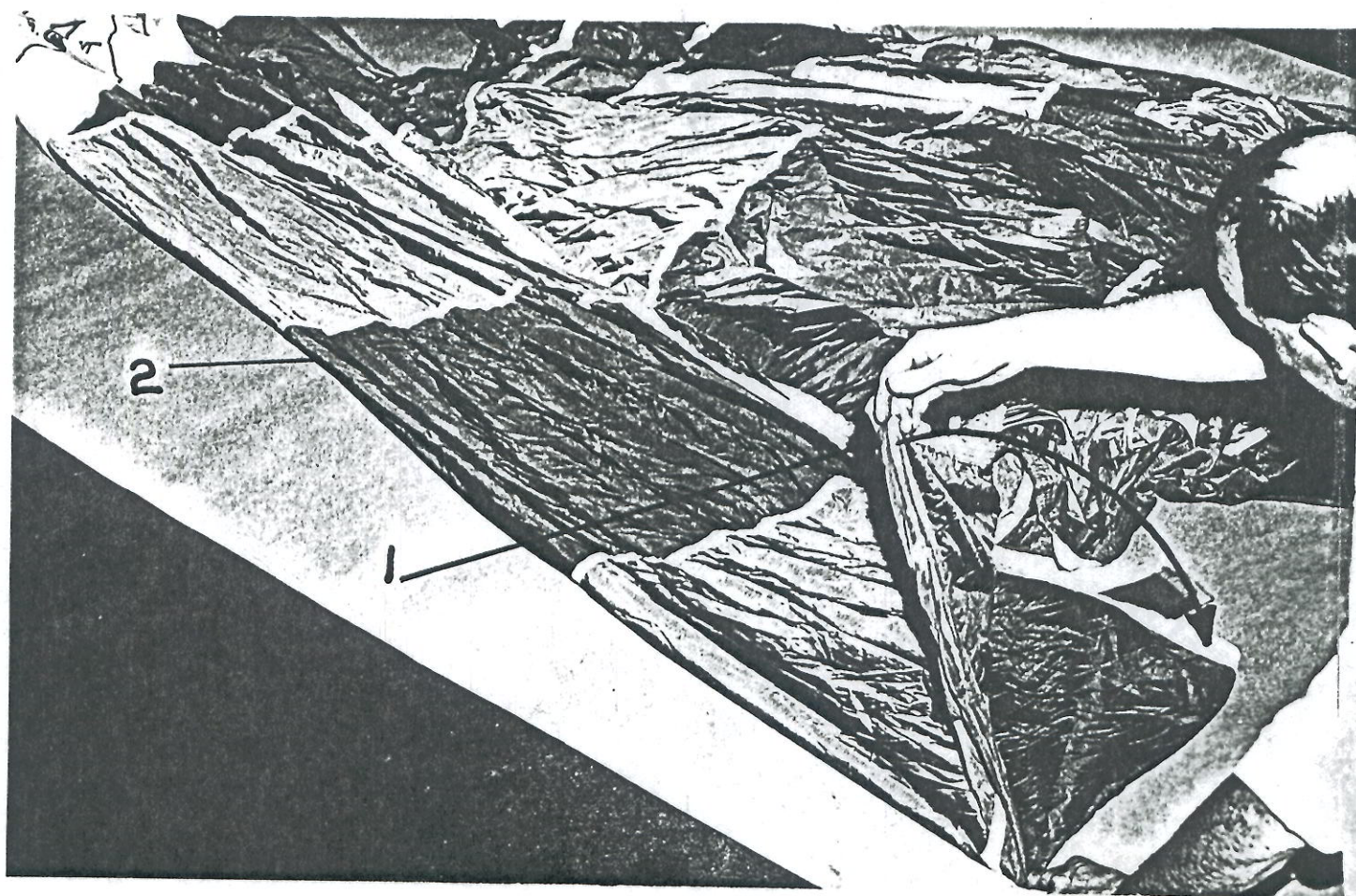


FIG. 6



FIG. 7

SUBSEQUENT FOLDS AT THE LEFT - HAND  
SIDE OF THE WING BEING COMPLETED

1. Control panel being pulled - up  
towards top of wing.

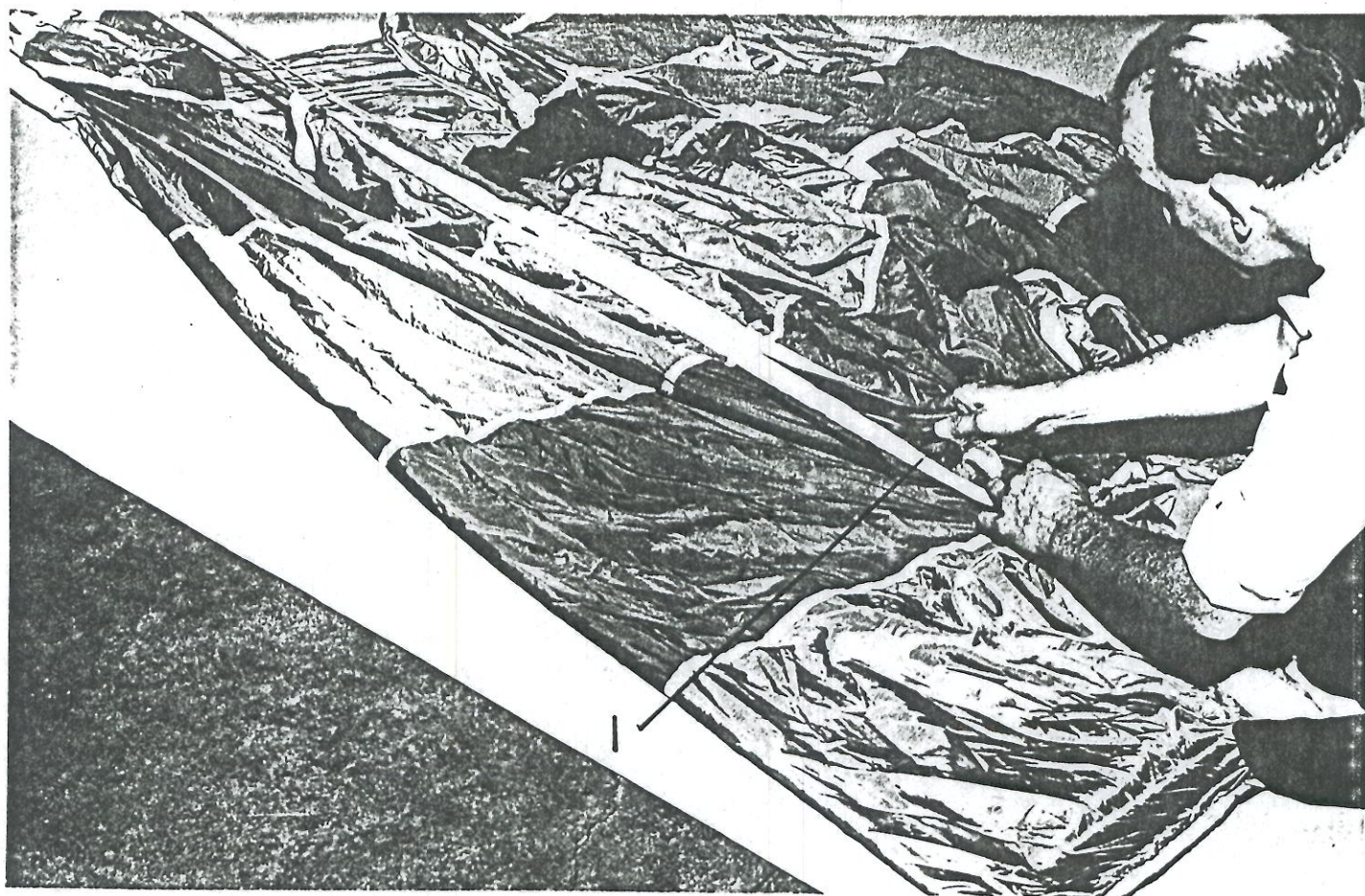


FIG. 7

FIG. 8

LEFT - HAND SIDE OF WING FOLDED

1. Wing 'solid' between forward panels and nose panel.

FIG. 9

FOLDING OF THE WING COMPLETED

1. Leading edges arranged in 'sharks tooth' configuration



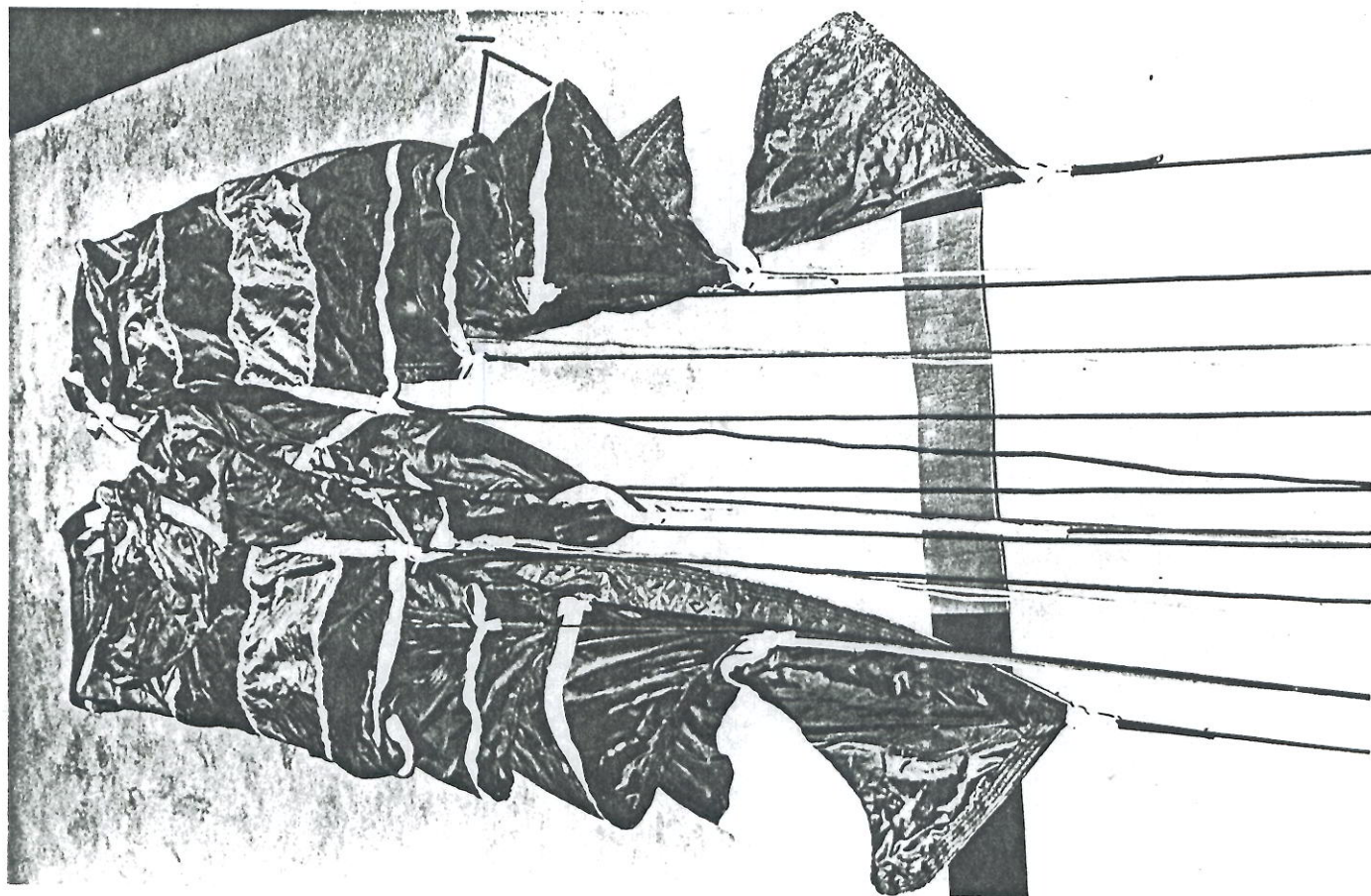


FIG. 9

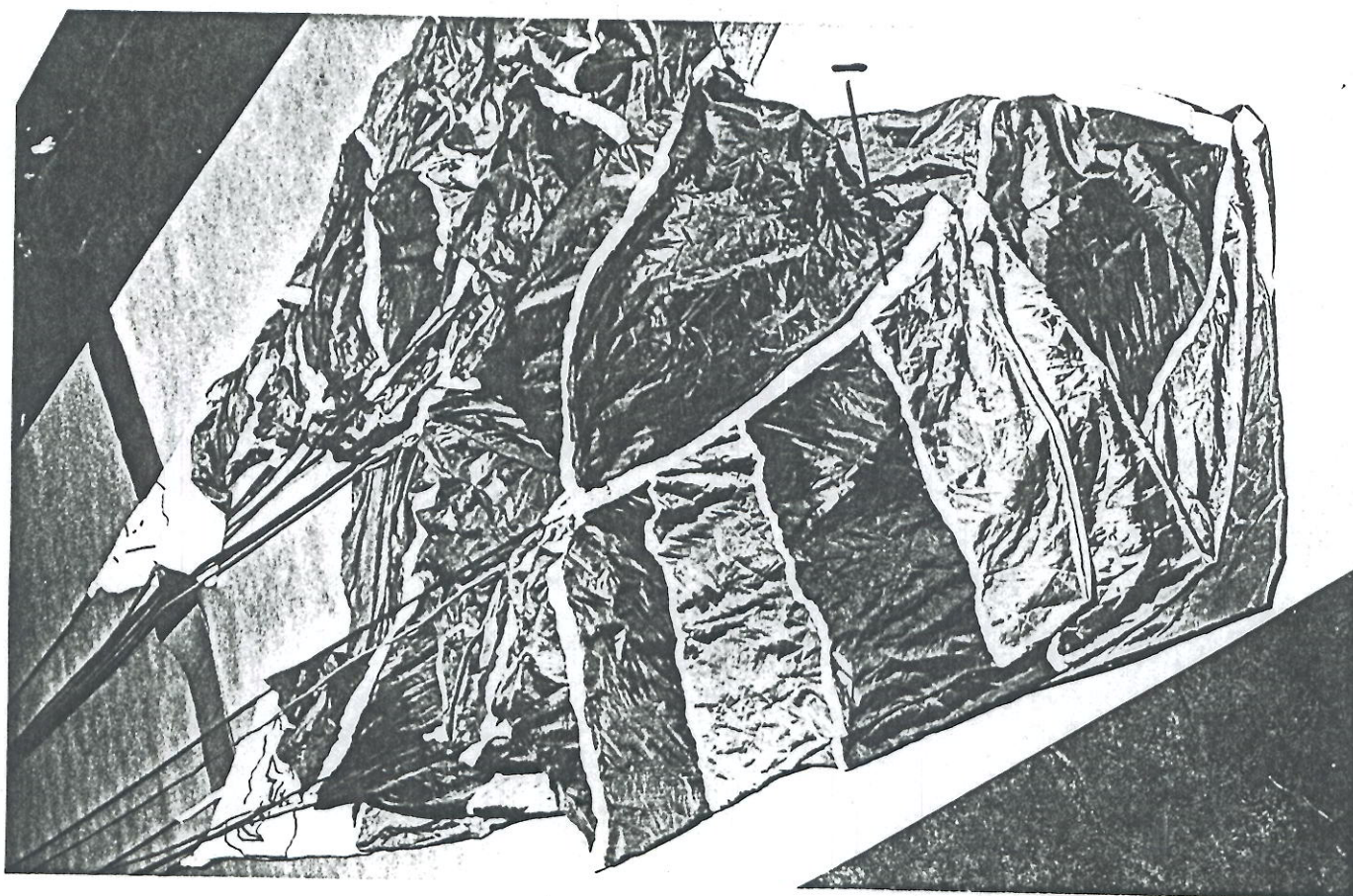


FIG. 8

FIG. 10

TOP OPENING SHOCK INHIBITOR (O.S.I.)  
FITTED AROUND FOLDED WING

FIG. 11

NOSE OF WING WITHDRAWN  
FROM TOP O.S.I.

1. Bottom O.S.I. locking tab  
lanyard attachment at line  
2K (blue).





FIG. 10

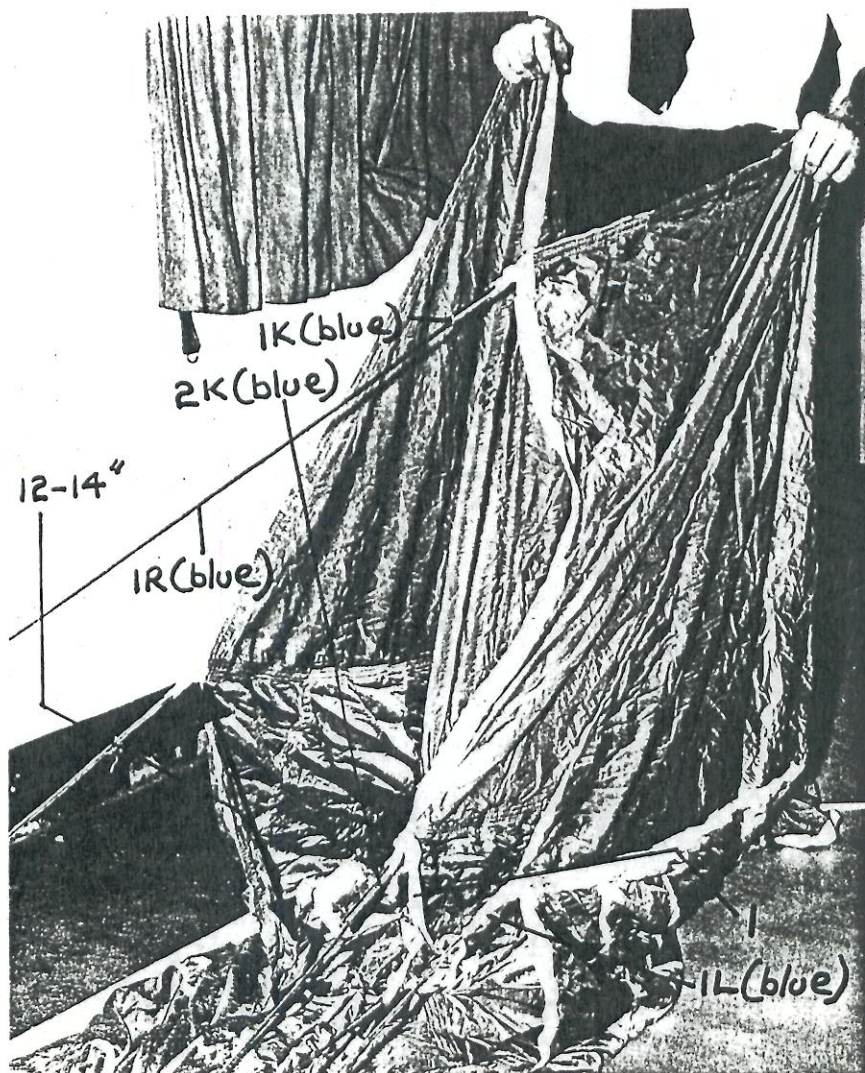


FIG. 11



FIG. 12

NOSE PANEL POSITIONED ON  
FOLDED WING

1. Nose line IK (blue) centrally positioned.
2. Material of nose evenly, but not tightly, distributed around folds of wing.

FIG. 13

CHECKING THE BOTTOM O.S.I.  
LOCKING TAB LANYARD

1. Locking tab lanyard.
2. Lanyard correctly routed through D - rings on keel (lines 3K (orange) and 4K (green)).
3. Line 4K (green) passing through D - ring of bottom O.S.I. locking tab.

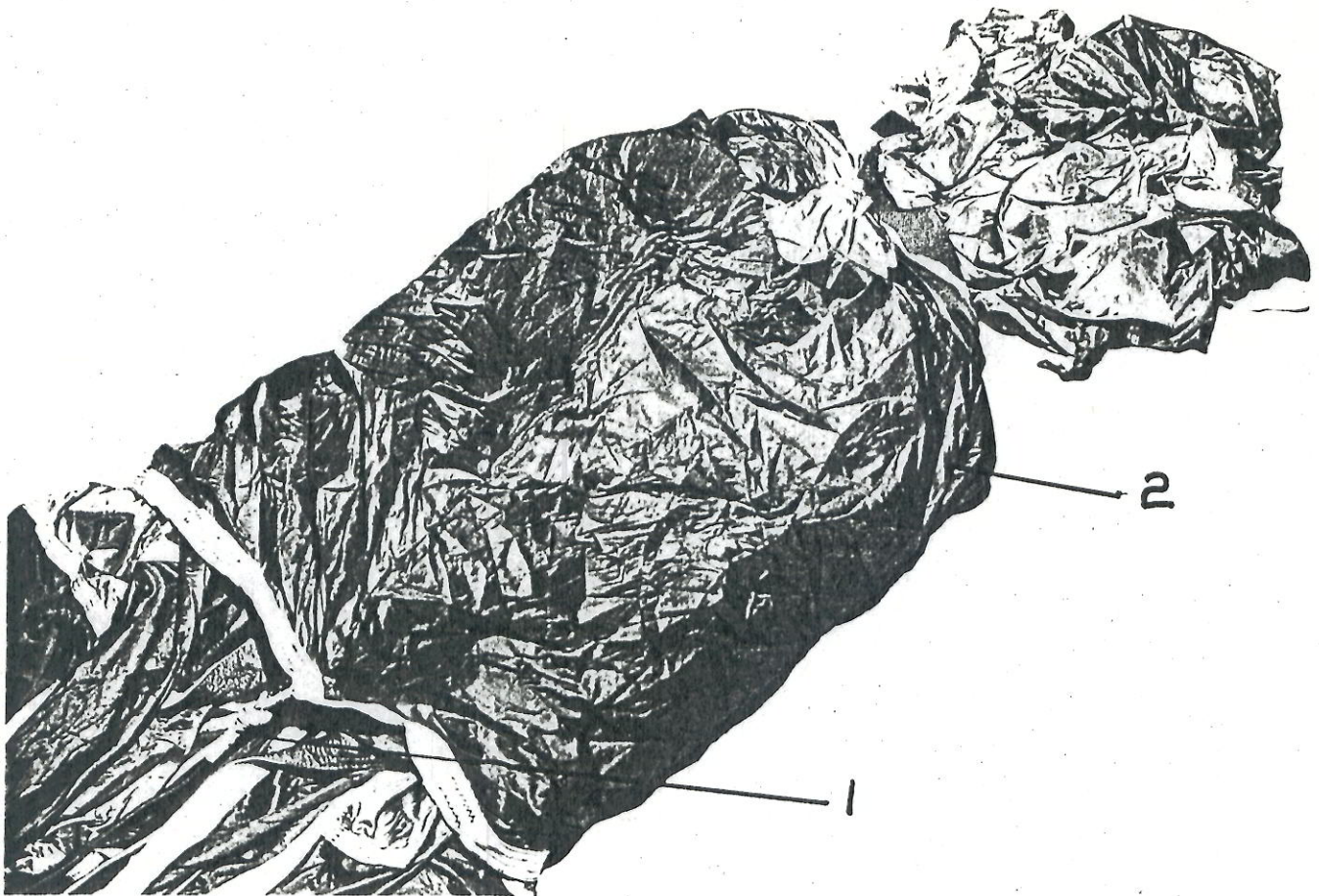


FIG. 12

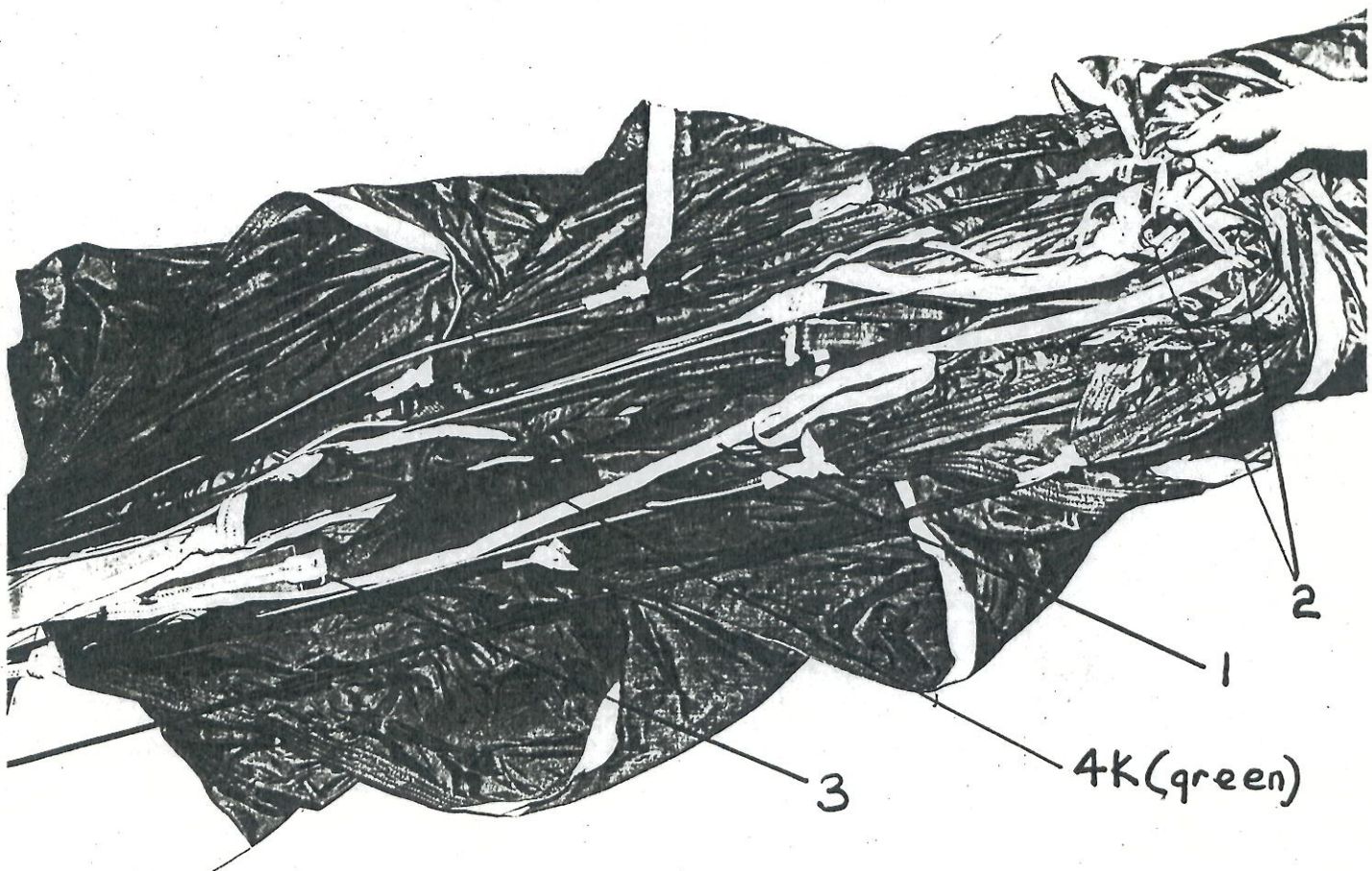


FIG. 13

FIG. 14

ASSEMBLING THE BOTTOM O.S.I. :

FIRST STAGE

1. Leading edge of wing above lines  
5R and 5L (red) folded inwards.

FIG. 15

ASSEMBLING THE BOTTOM O.S.I. :

SECOND STAGE



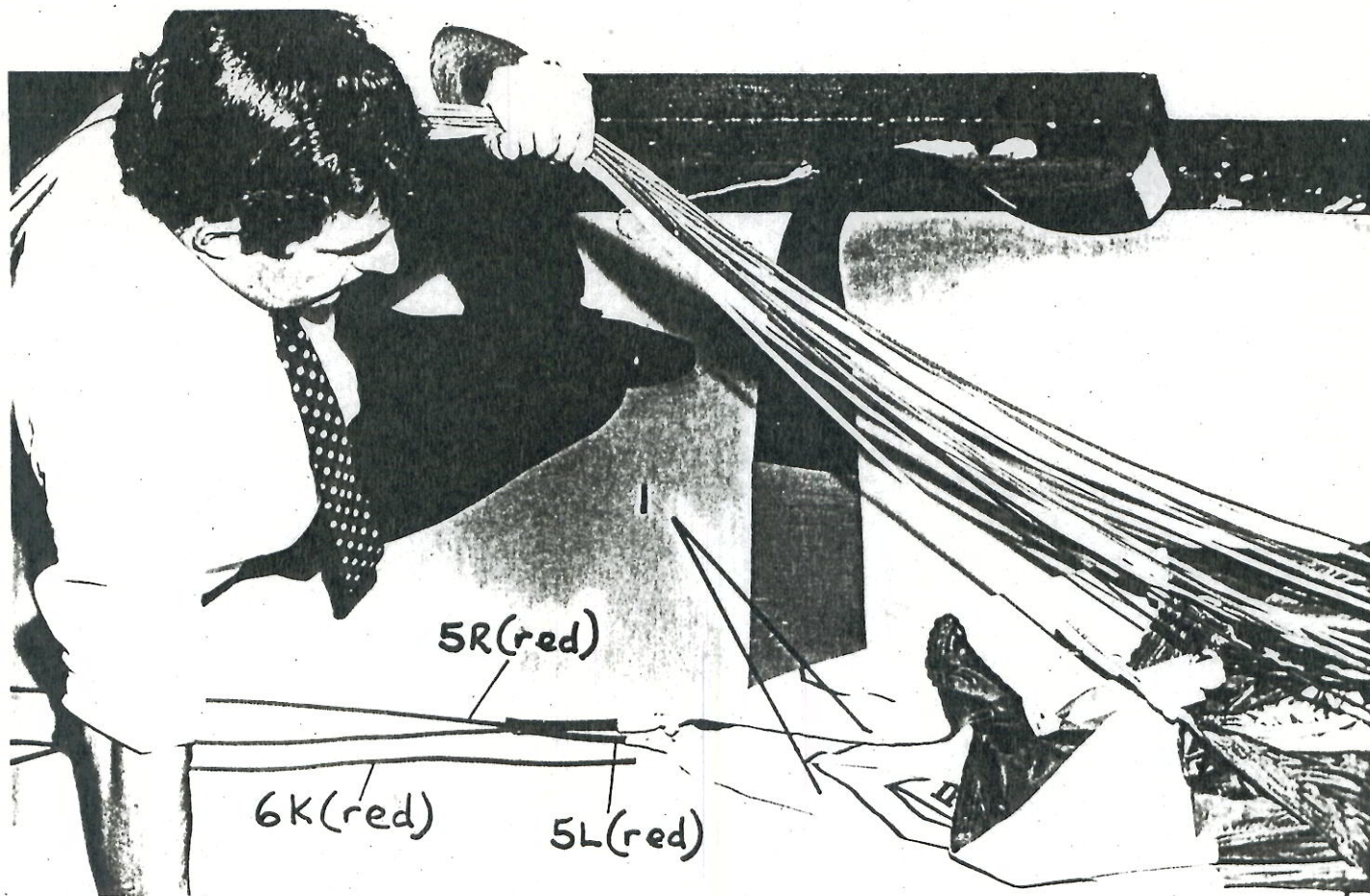


FIG. 14

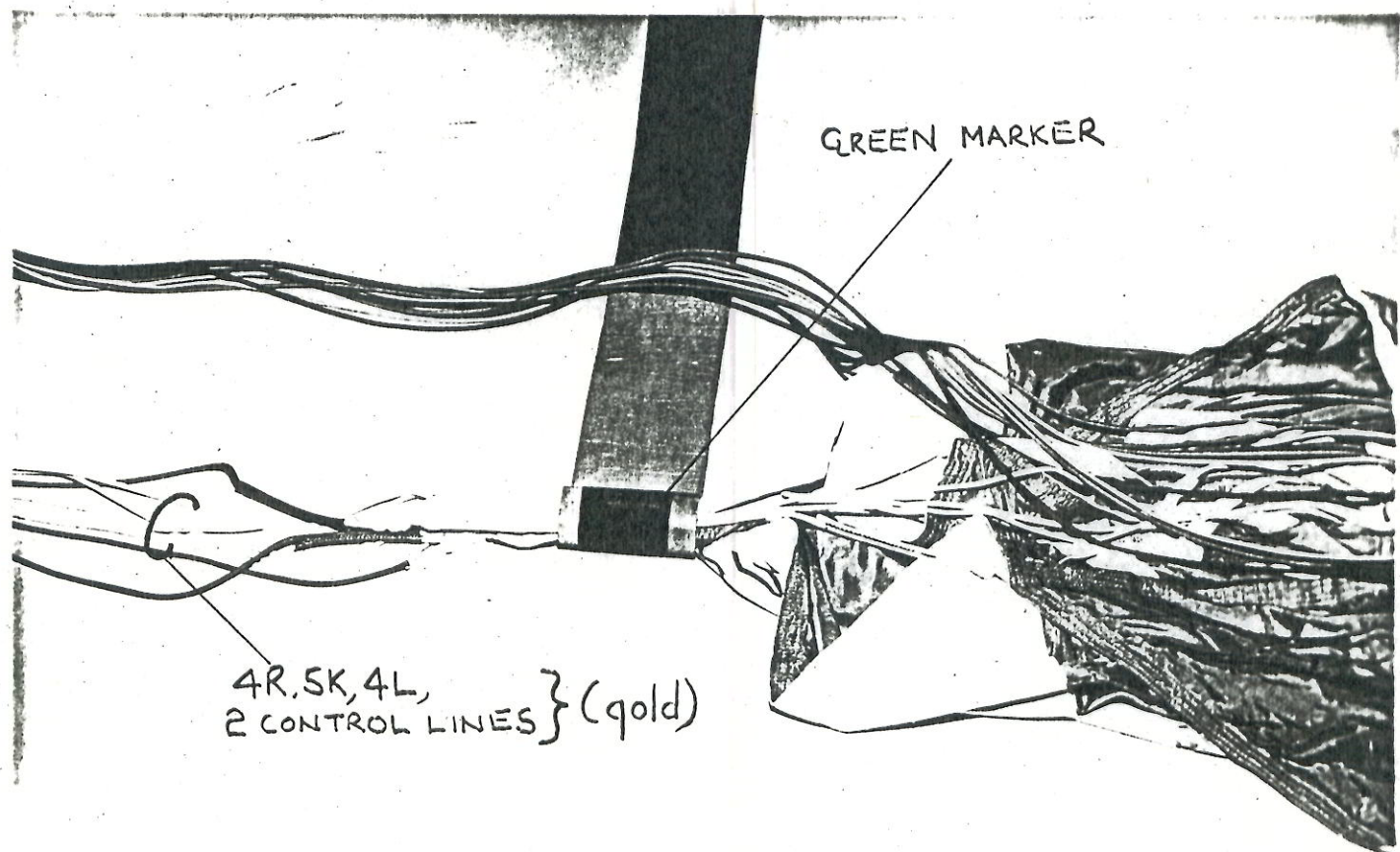


FIG. 15

FIG. 16

ASSEMBLING THE BOTTOM O.S.I. :  
THIRD STAGE

FIG. 17

ASSEMBLING THE BOTTOM O.S.I. :  
FOURTH STAGE



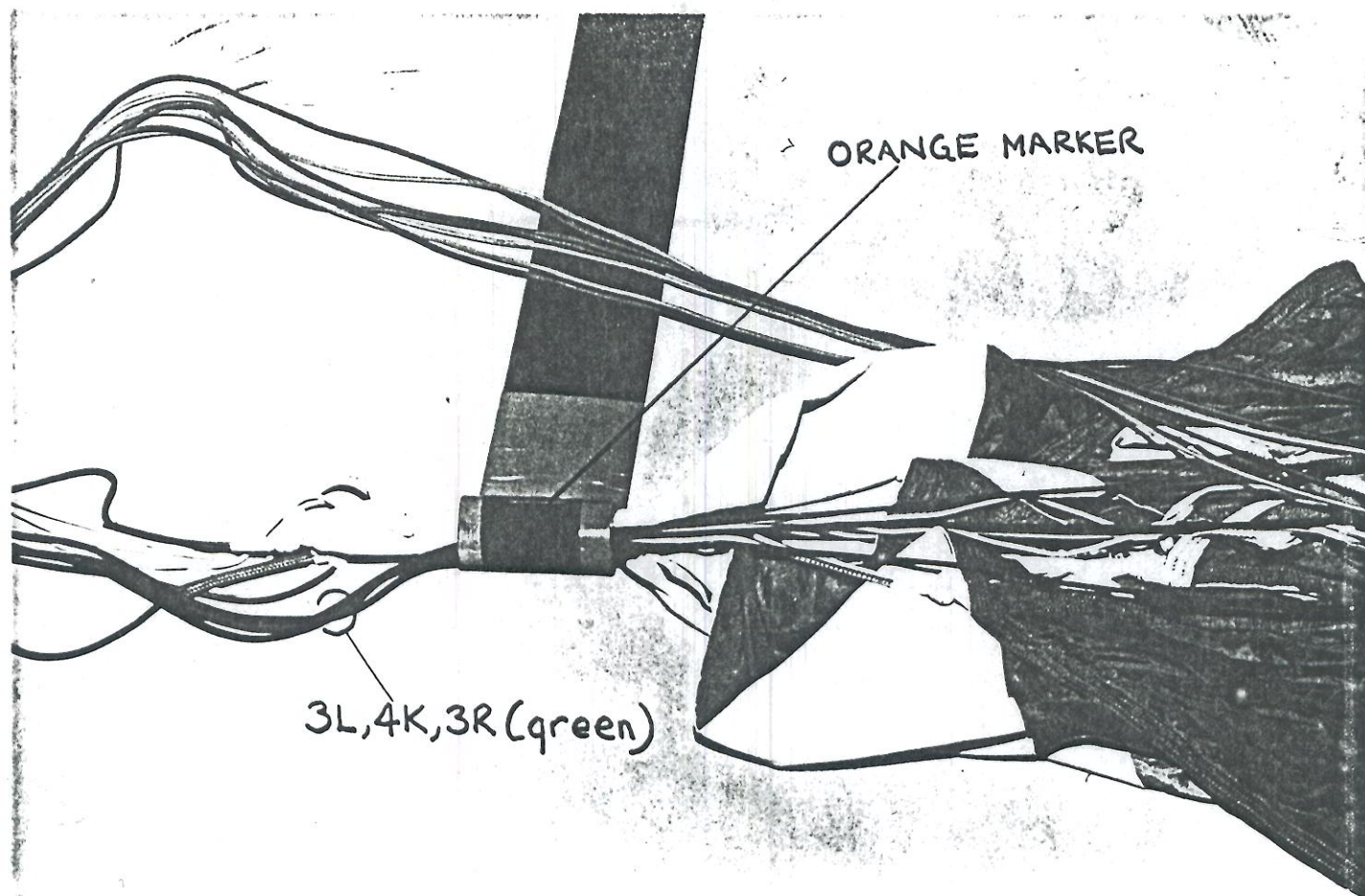


FIG. 16

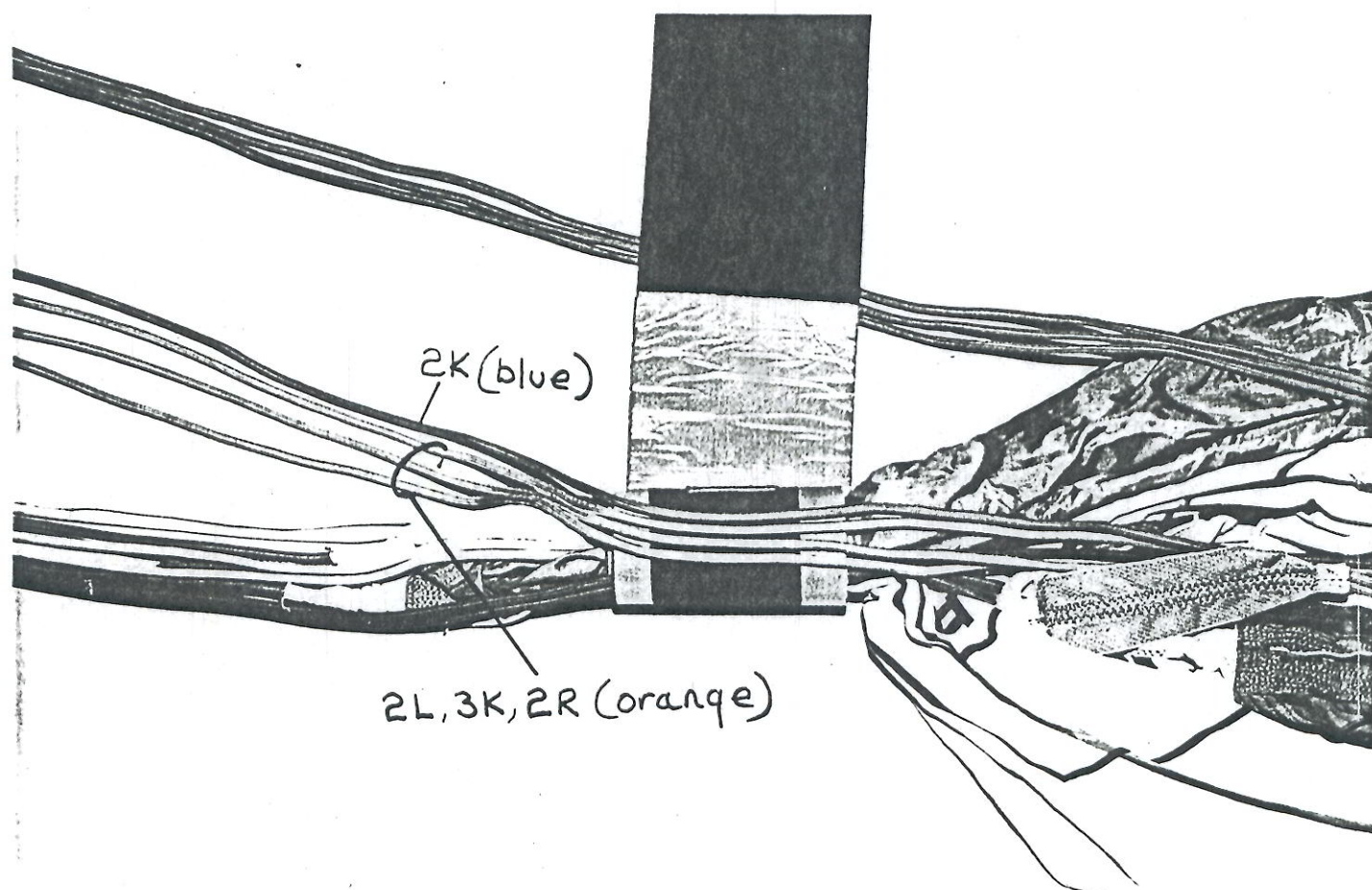


FIG. 17

FIG. 18

BOTTOM O.S.I. ASSEMBLED :

LOCKING TAB FITTED

1. D - ring of locking tab must lie at this side of O.S.I.
2. Lanyard routed direct to line 4K (green) without passing around other lines.

FIG. 19

WING AND BOTTOM O.S.I. STOWED

IN DEPLOYMENT BAG

1. Lines IR, 1K, 1L (blue) positioned across bag above O.S.I.
2. Top O.S.I. stowed in top left - hand corner of bag.
3. Top of wing stowed in top right - hand corner of bag.



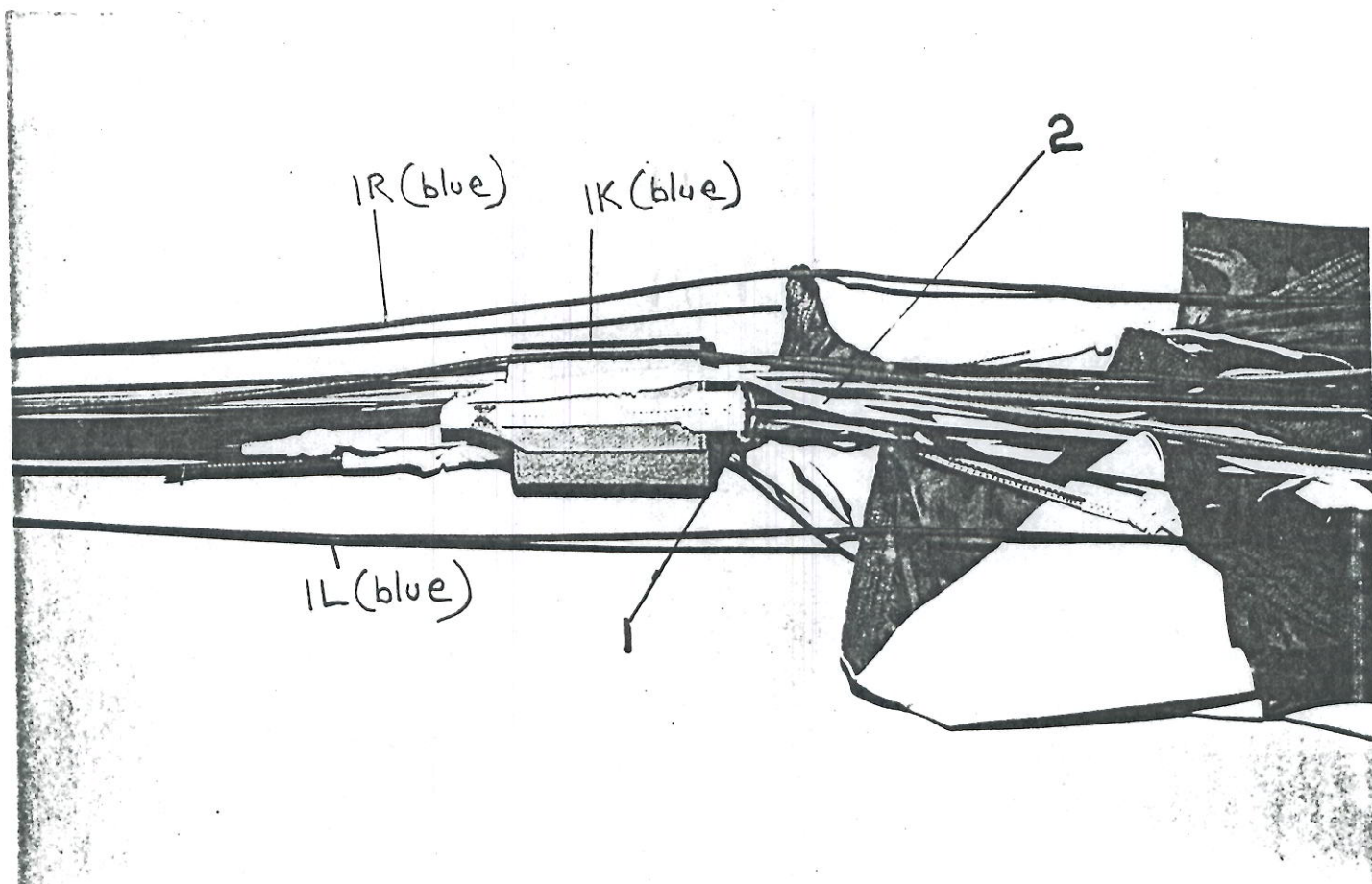


FIG. 18

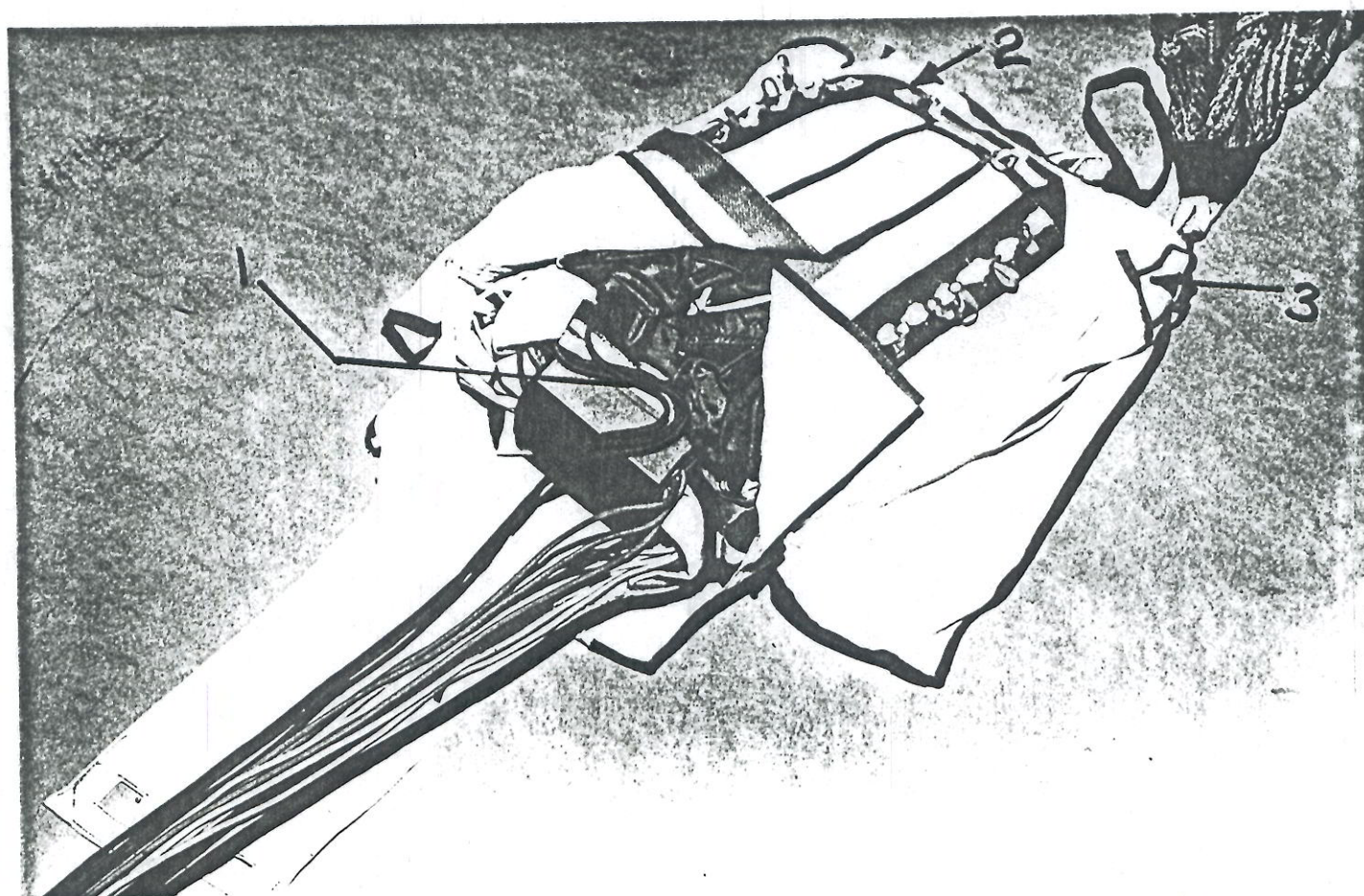


FIG. 19

FIG. 20

MOUTH FLAP OF DEPLOYMENT

BAG SECURED

FIG. 21

RIGGING LINES STOWED : PACK

TURNED UNDER LIFT WEBS

1. Bottom edge of pack (as worn)  
adjacent to deployment bag.
2. Pack base uppermost ; pack flaps  
extended : lift webs positioned  
correctly.



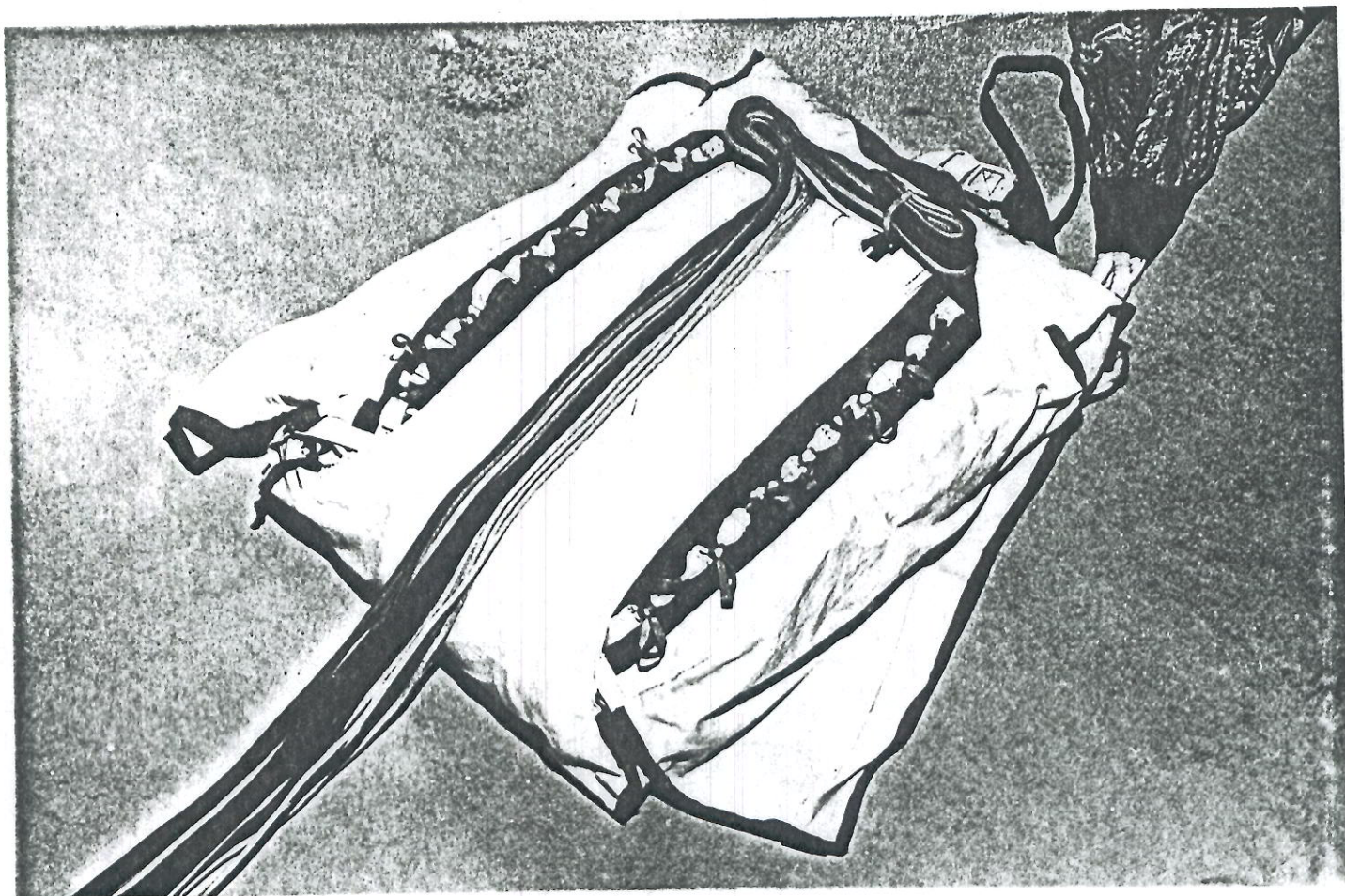


FIG. 20

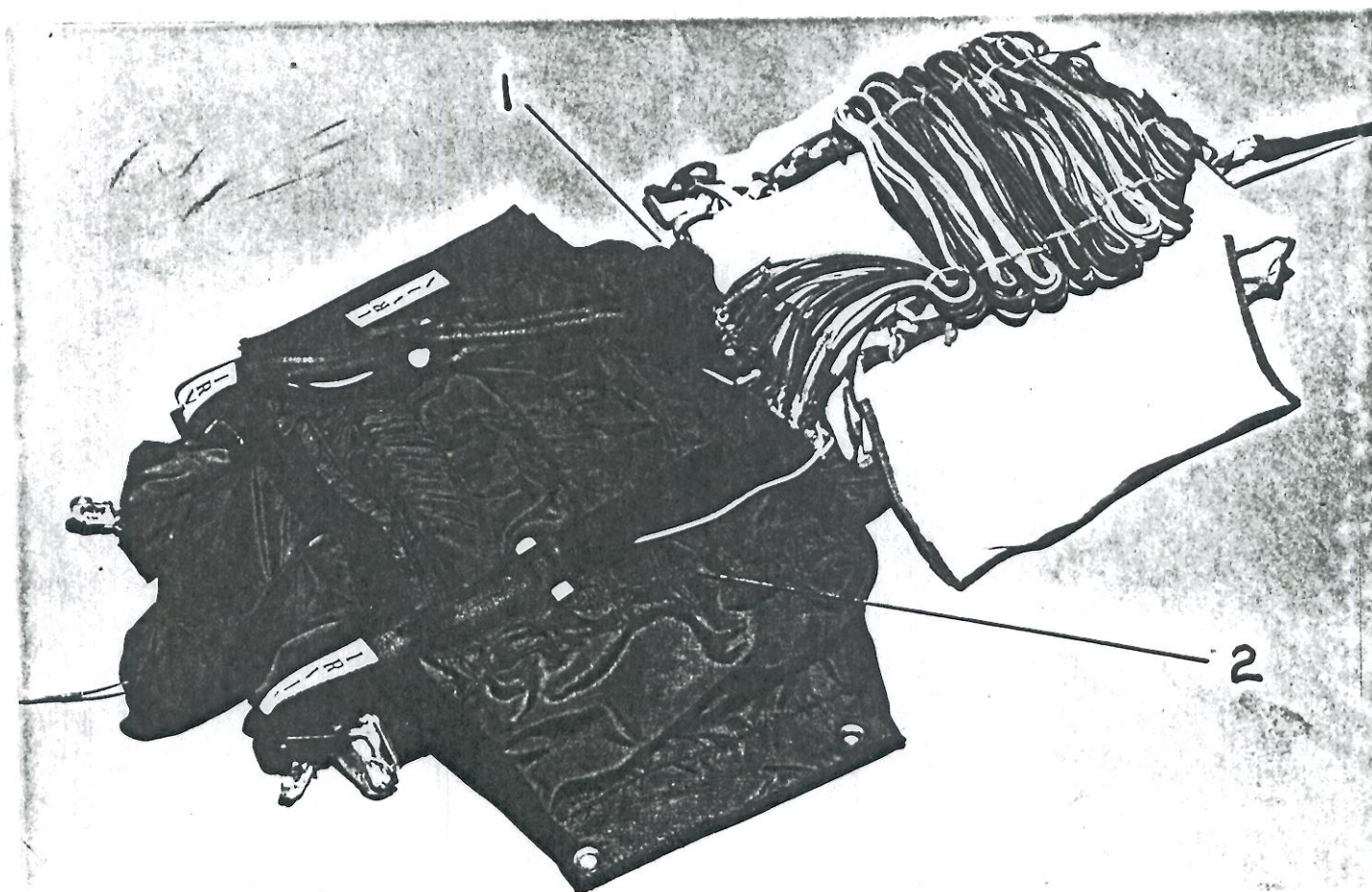


FIG. 21

FIG. 22

RETAINING LINE WITHDRAWN FROM DEPLOYMENT

BAG : RIGGING LINE PROTECTION FLAP SECURED

1. Retaining line withdrawn to equal length of tensioned deployment bag link line.
2. Rigging line protection flap.

FIG. 23

DEPLOYMENT BAG TURNED OVER ON TO BASE OF

PACK : RETAINING LINE AND

LINK LINE STOWED

1. Attachment knots clear of stowage bands.
2. Auxiliary parachute and deployment bag retaining line, and bag link line stowed.
3. Rigging line attachment links staggered on pack base.



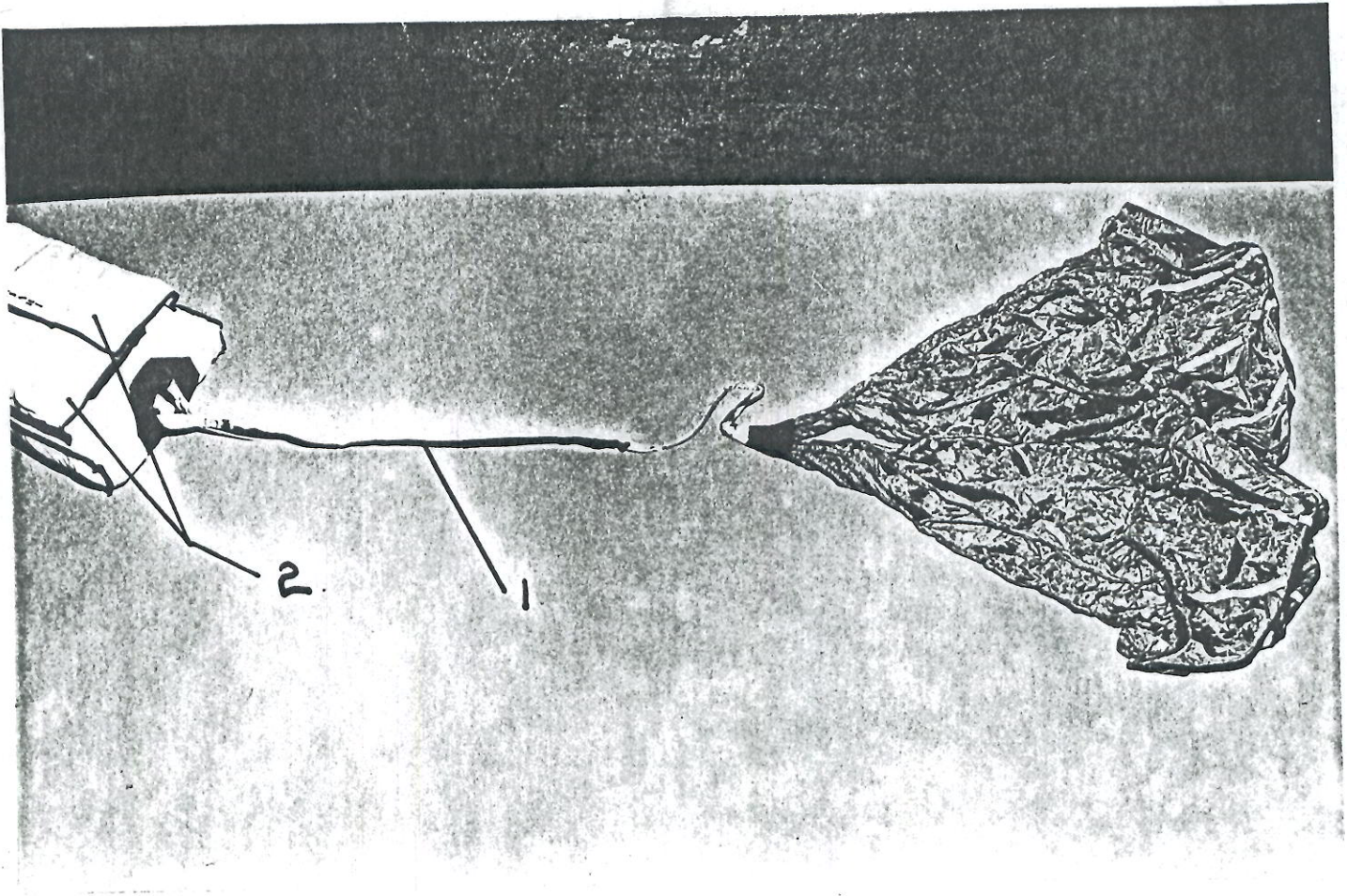


FIG. 22

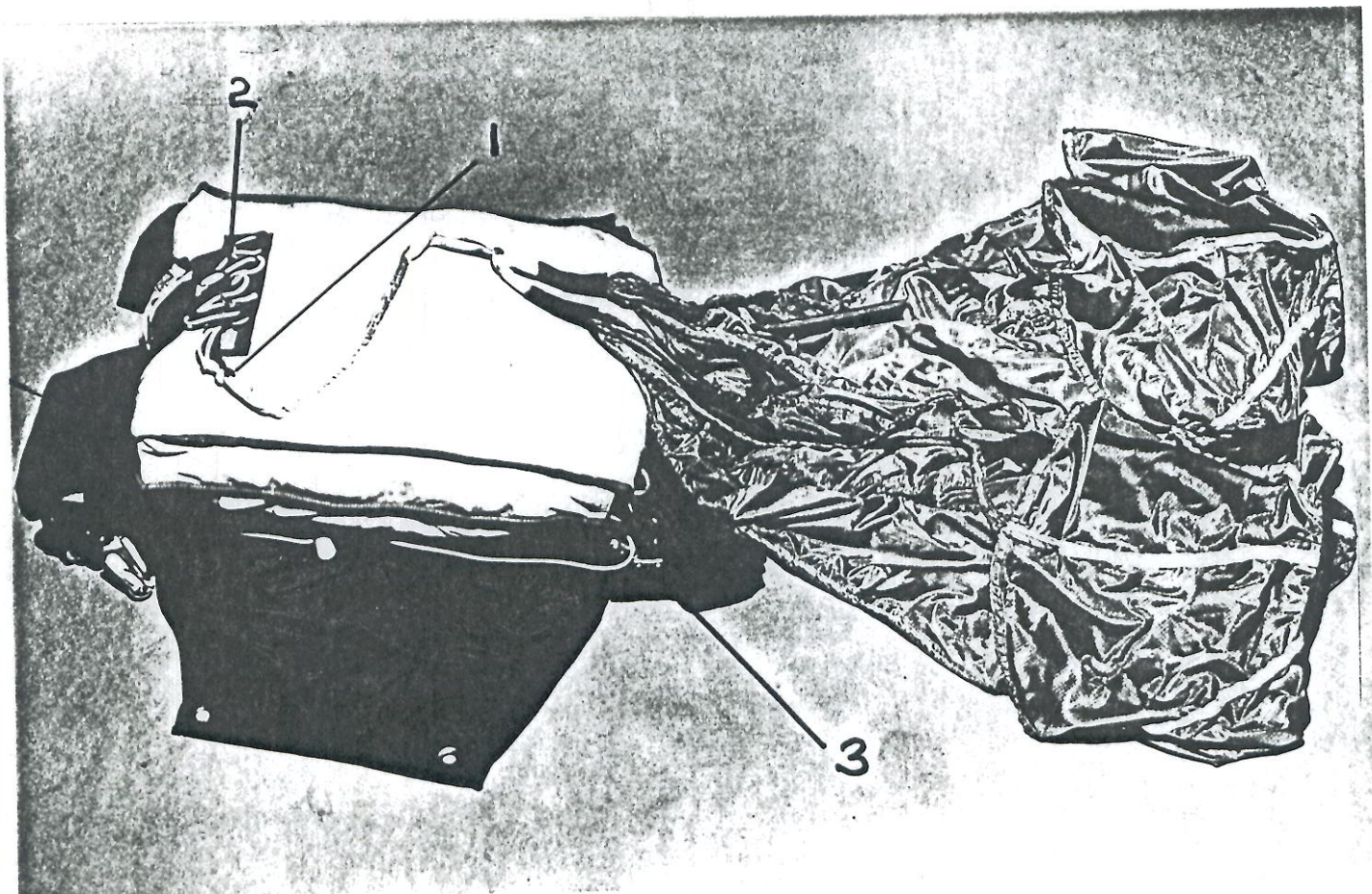


FIG. 23



FIG. 24

AUXILIARY PARACHUTES COMPRESSED  
ON TO DEPLOYMENT BAG

- 1..Auxiliary parachutes centrally  
positioned on deployment bag.

FIG. 25

PACK FLAPS SECURED : RIP PIN  
INSERTED AND SAFE TIED

1. Scarlet locking thread (Ref 15A/181)



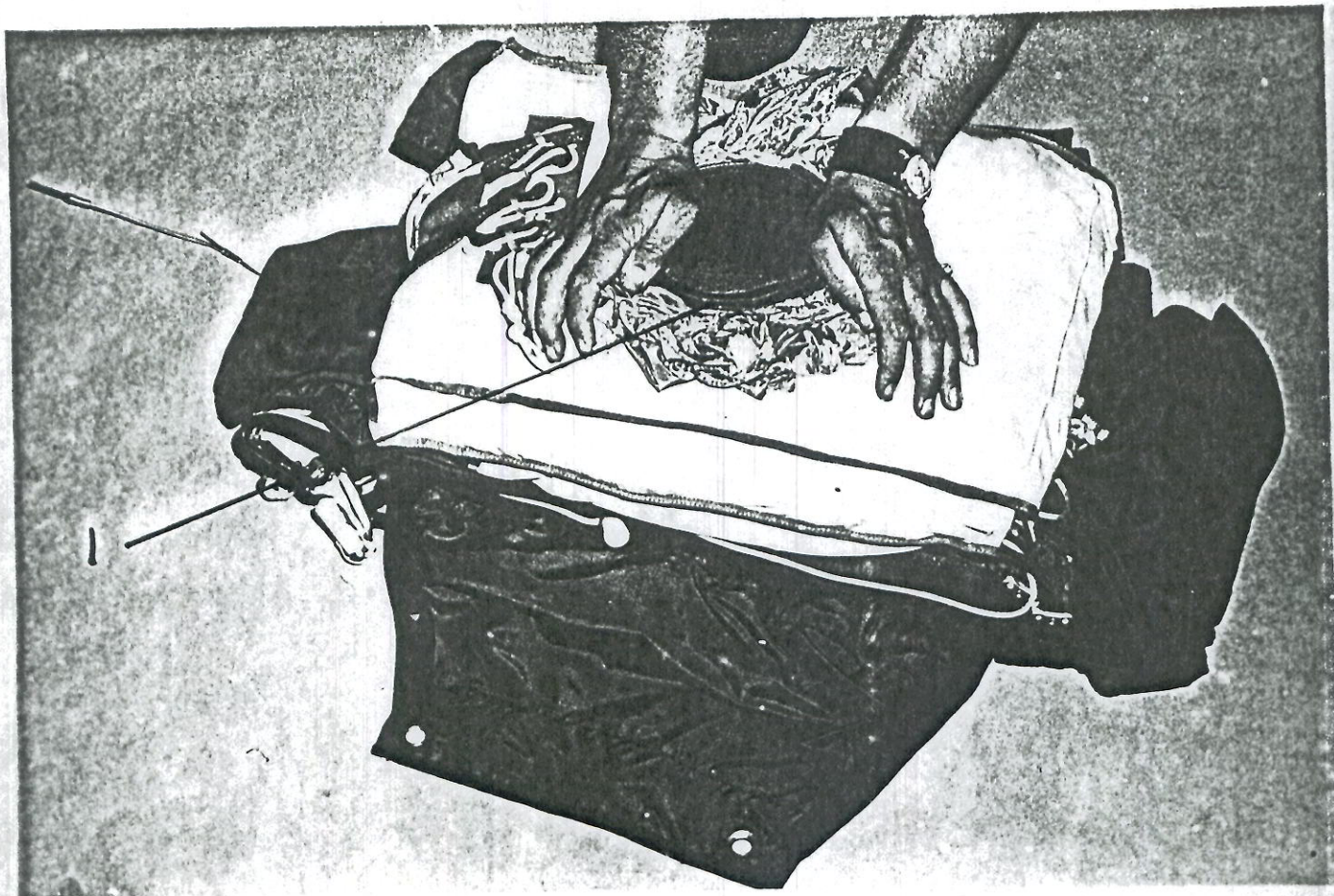


FIG. 24

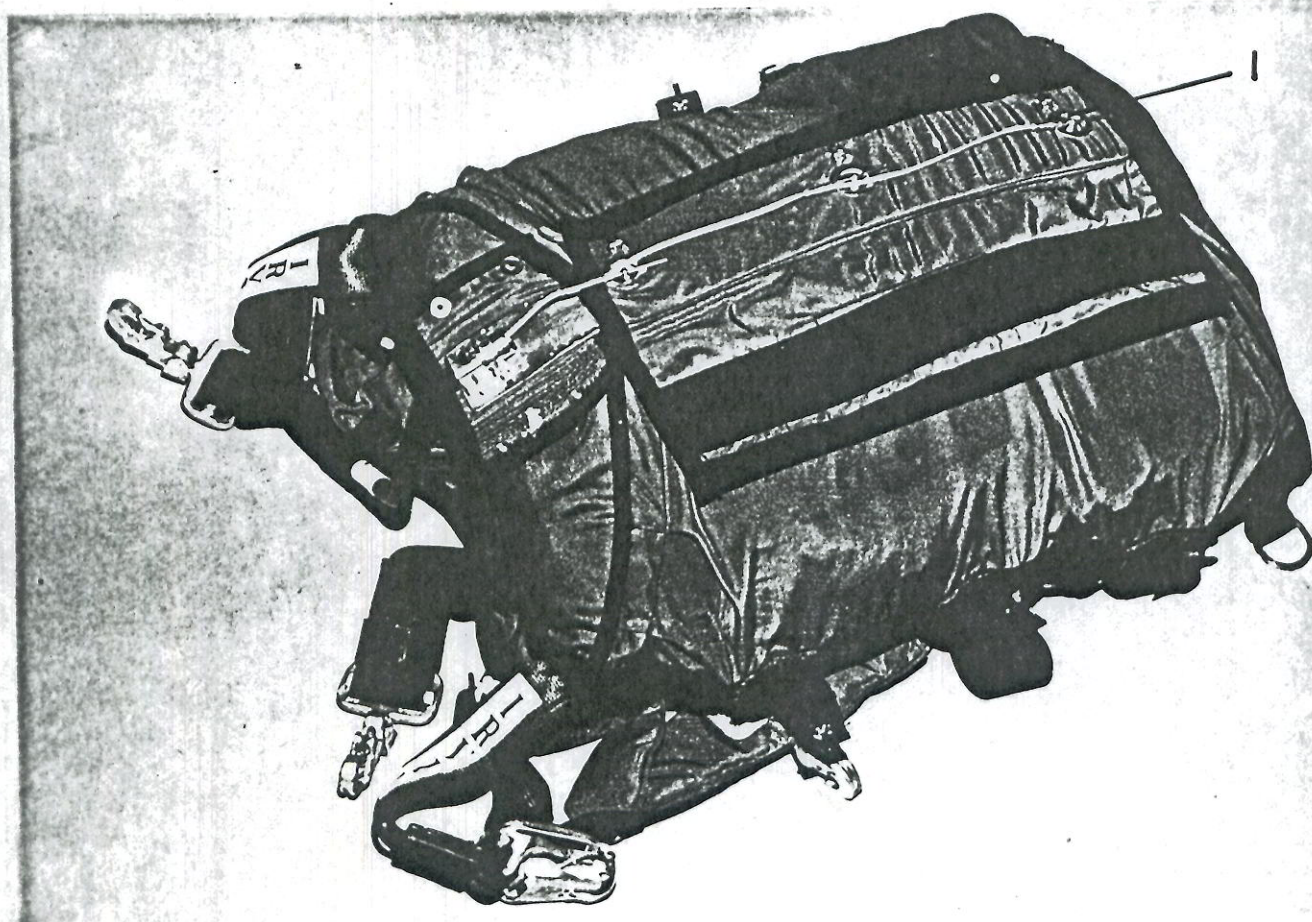


FIG. 25



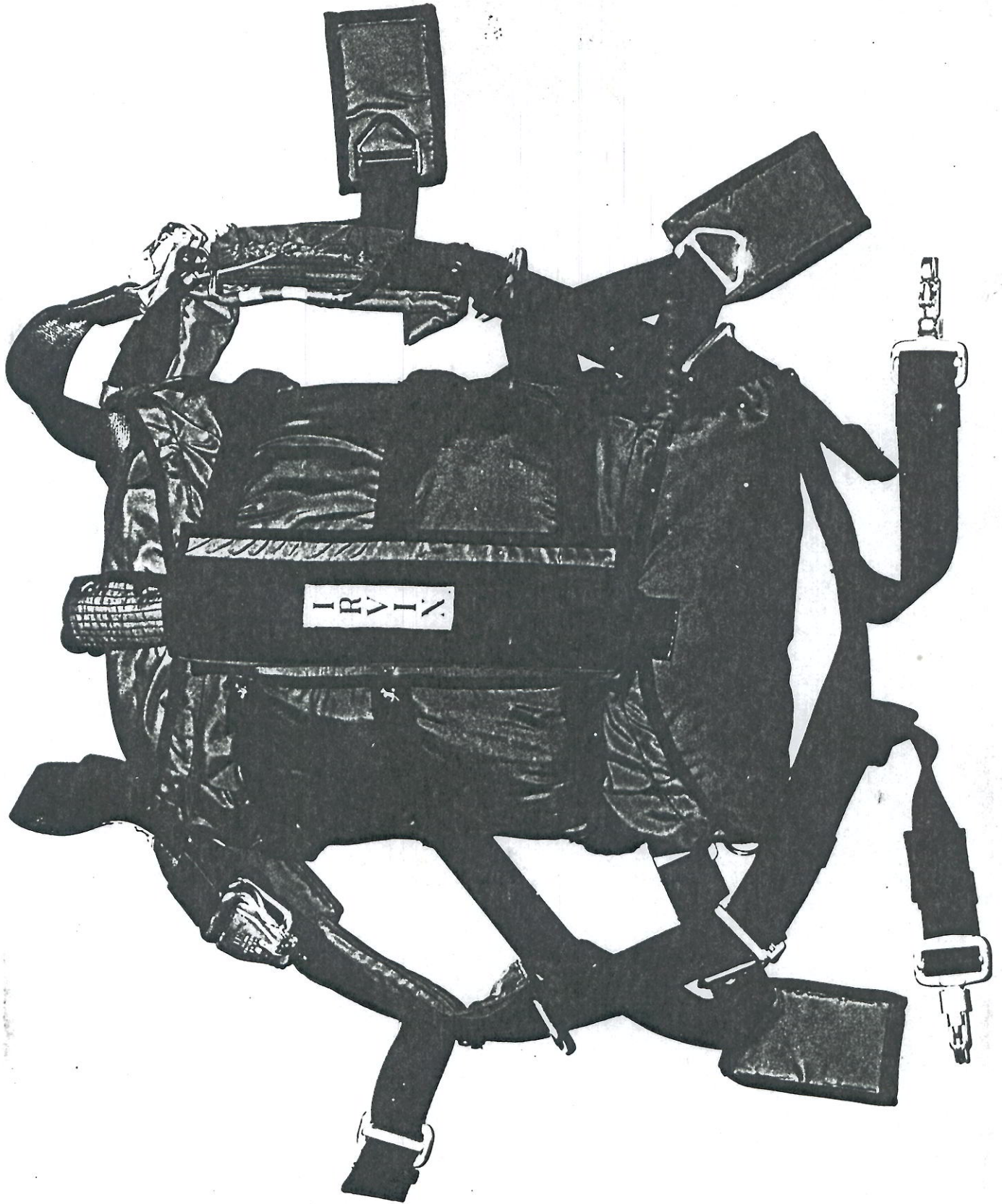


FIG. 26



FIG. 26

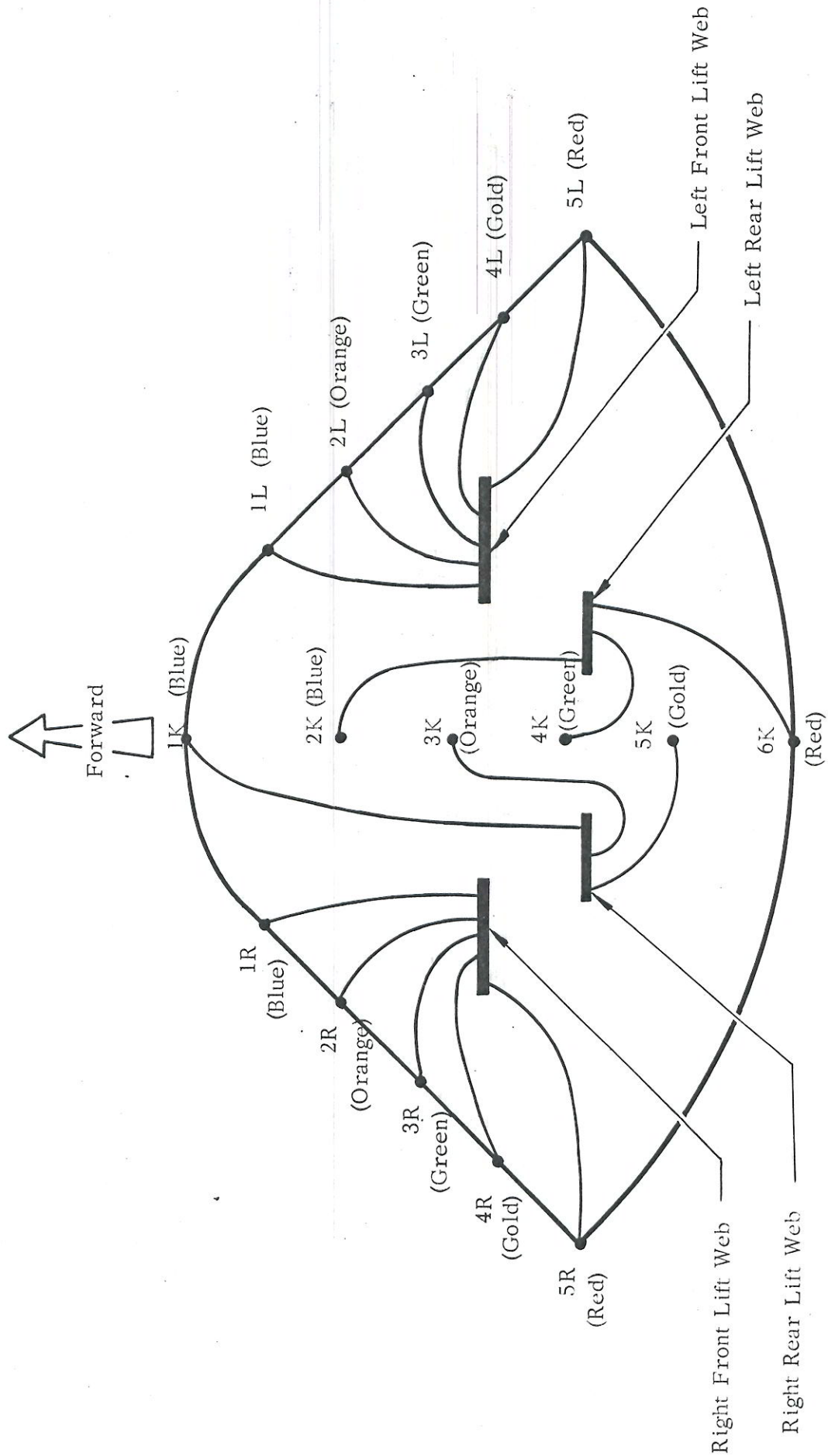
PACKING OF THE PARACHUTE  
ASSEMBLY COMPLETED

APPENDIX 'A'

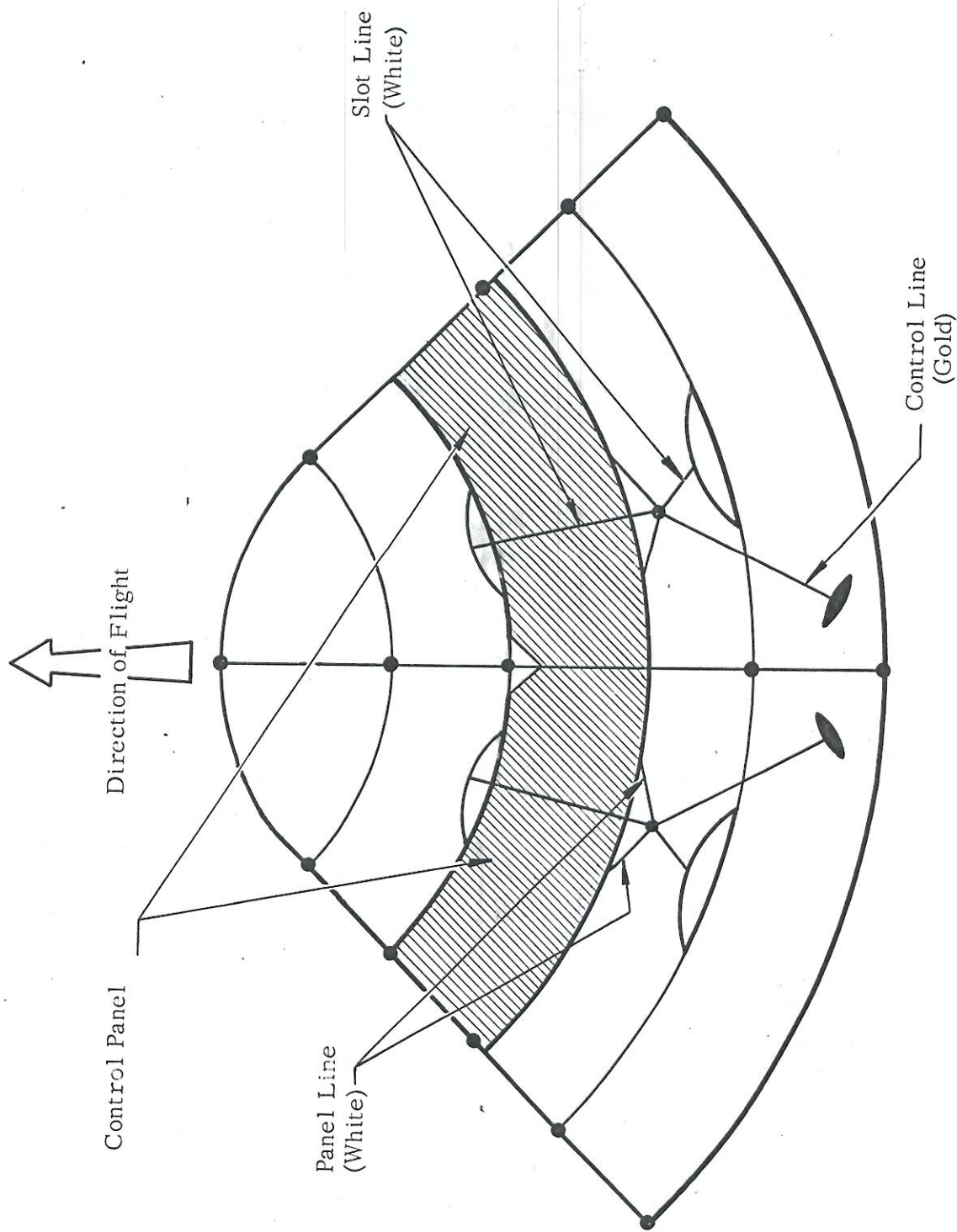




# APPENDIX 'B'



RIGGING LINE ROUTING DIAGRAM VIEWED FROM BENEATH WING

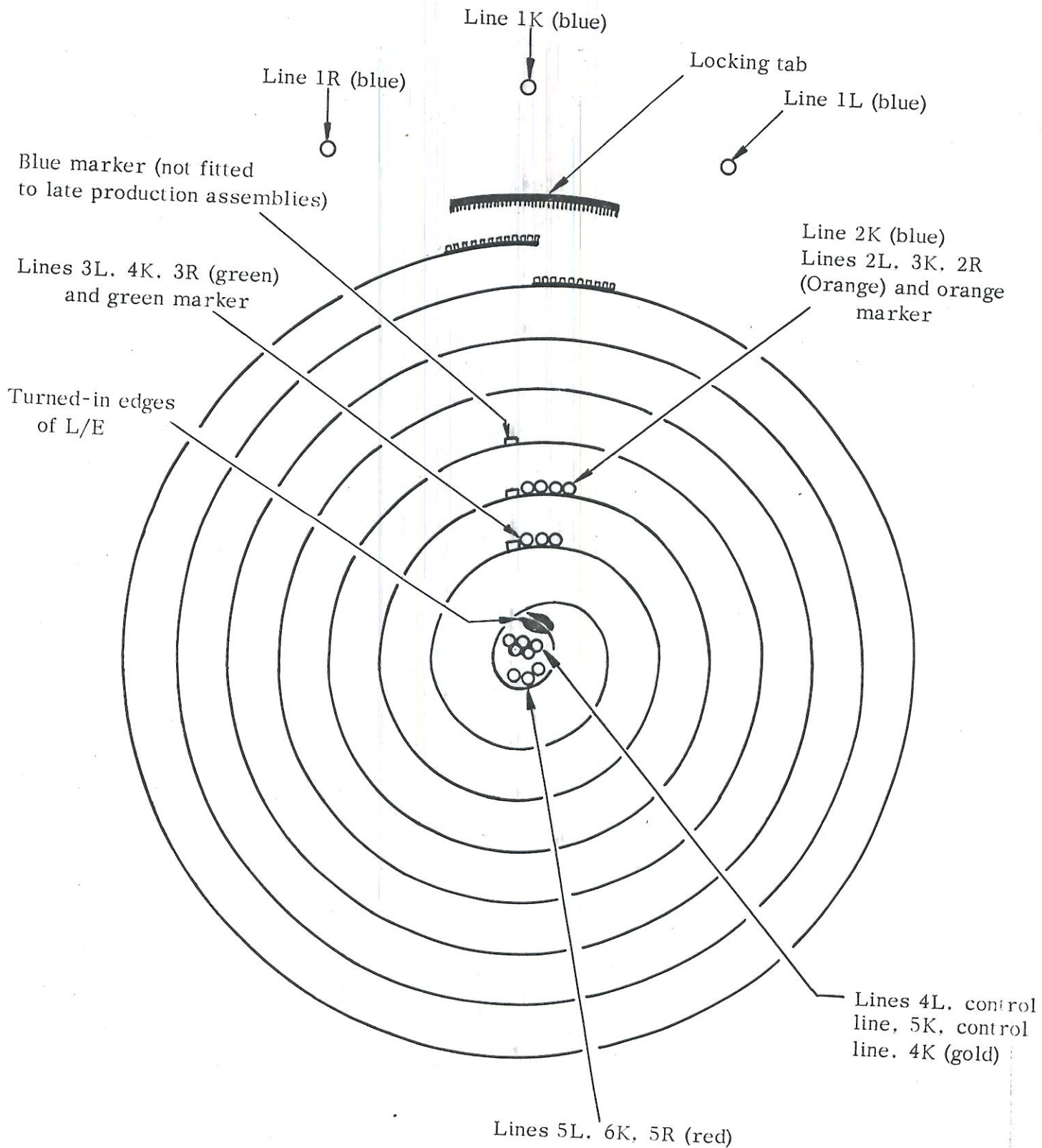


VIEW LOOKING UP AT WING IN FLIGHT



# APPENDIX 'D'

Packing Instructions RD.131



CROSS SECTION OF BOTTOM OPENING SHOCK INHIBITOR AFTER LINES HAVE BEEN LAID-IN (VIEWED LOOKING TOWARDS WING)